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HP Professional

AN INDEPENDENT PUBLICATION FOR USERS OF HP COMPUTERS ■ VOL.4 ■ NO.2 ■ \$4.00

FEBRUARY 1990

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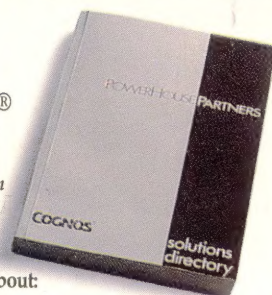
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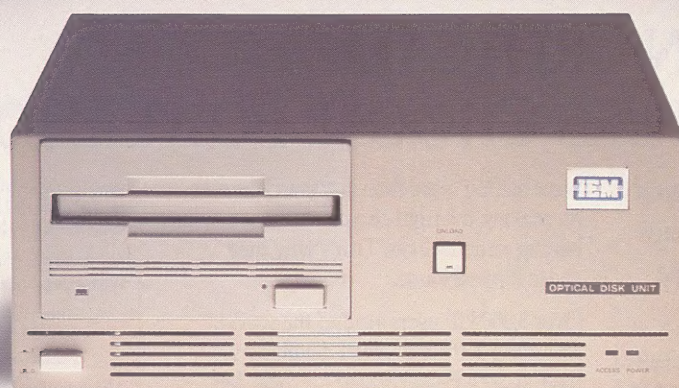
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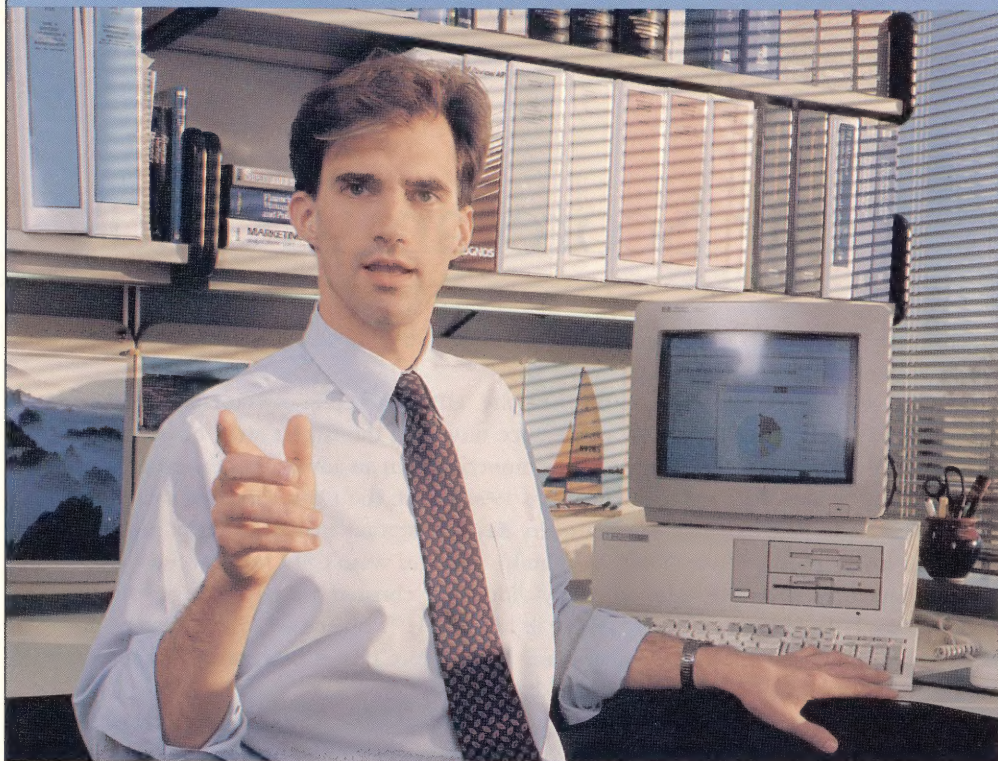
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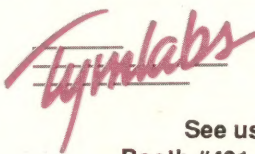
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Get Your Scorecards Ready

Remember this date: Wednesday, January 10, 1990. That's the day Hewlett-Packard announced to the world that its mild-mannered days are over.

"The gloves are coming off," proclaimed Bill Murphy, HP's marketing director, Networked Systems Sector, at the New York City press conference unveiling the largest array of HP products in the company's 50-year history. "One of our competitors ran an advertising campaign saying that *they had it now* ... well, that was 1985 and this is 1990, and in the 1990s, *HP has it now*."

Sure, HP has reason to puff its chest. It's not every day a computer manufacturer pumps out 24 new across-the-board products (see News & Trends). But this wasn't just your average one-upmanship announcement from HP. The company didn't just christen a new destroyer armed with more mips. No, HP added a brand new *fleet* to its armada. HP's objective? Quite clear — go head-to-head against DEC and IBM. Fire when ready ... no more mister nice guy. "We're not the mild-mannered HP you're used to seeing," added Murphy.

Although HP watchers have applauded the mega-announcement more for its breadth than technological oohhs and aahhs, HP is more concerned with long-term gains, rather than winning short-term battles.

With the introduction of 24 new commercial and technical computer systems — stretching from the low end, midrange, to high end, including 11 new servers — HP now boasts of having the broadest line of computers based on its reduced instruction-set computing (RISC) architecture.

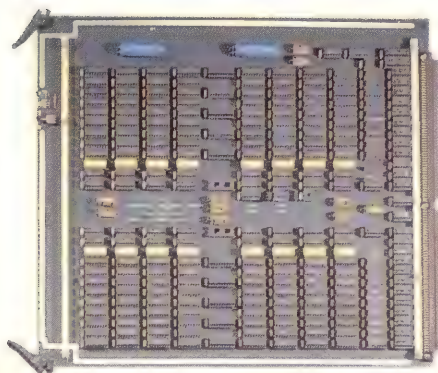
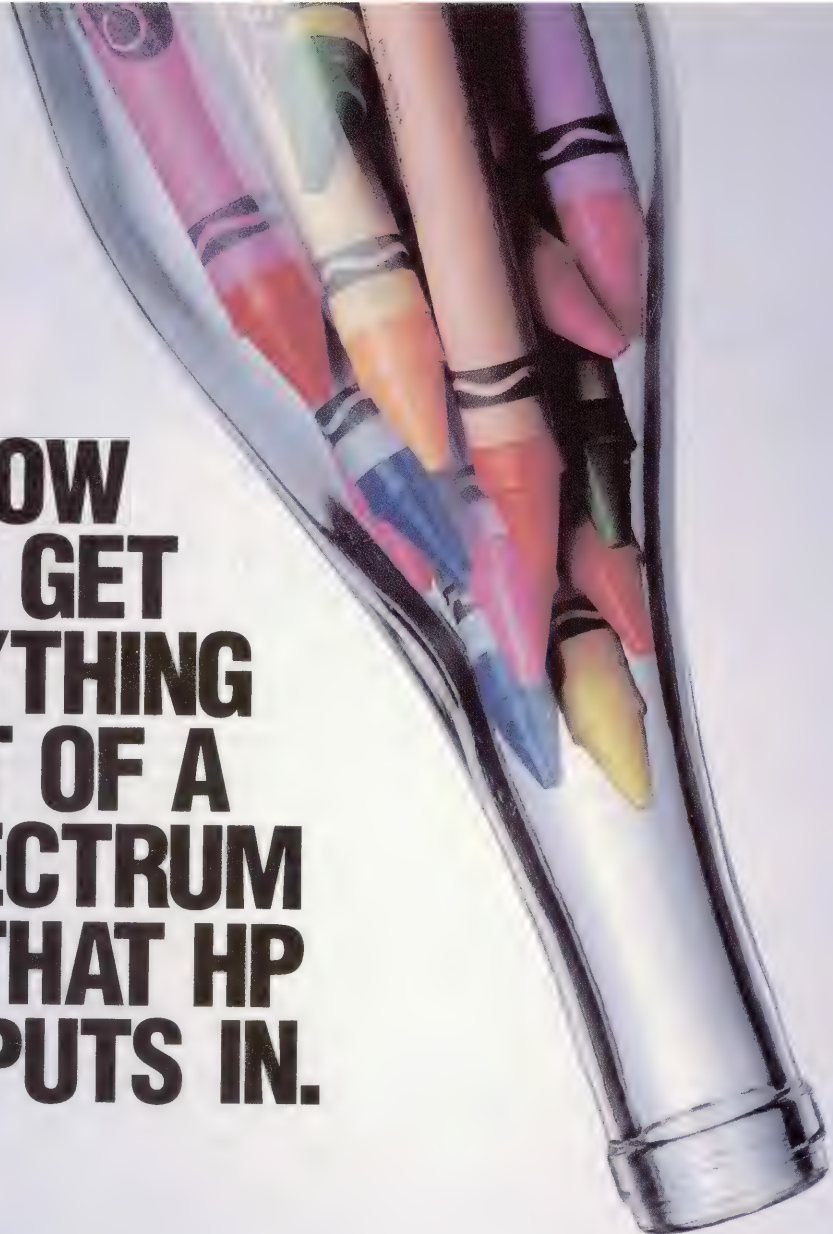
Long-term strategy? HP is positioning itself to become a leader in client/server computing with its Cooperative Computing concept — sharing computing and information resources on a network. The client/server model is the "central force shaping the evolution and the role of the minicomputer for the 1990s," said Doug Chance, executive vice president, Networked Systems Sector, to the throng of news media attending the January 10 announcement.

"We believe that Cooperative Computing based on open systems is clearly a major force affecting our industry," Chance extolled, adding, "We believe it's good for our customers — they want open alternatives to DEC and IBM."

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QUERY:

Martin E. Bowers (SIG 26/MESS 14): I can't spool my LaserJet to the HP 3000. It won't print in compressed print, even after trying a multitude of workarounds. With other laser printers, you can use an environment statement as part of your file equation, but I have no environment files for this printer. How could I locate a set of these environment files for the LaserJet? I also tried printing a file using escape sequences, for landscape compressed print, and printed my report file. The laser holds the landscape setting but not the compressed print.

REPLY:

Doug Shelton (SIG 26/MESS 16): I use HP's Workstation Configurator Program to set up several terminal type files for my LaserJet II printers. It allows you to create VFC files for printers. These files allow for the specification of an initialization string to be sent to the printer every time a spool file is printed. Further, you can select from a variety of print formats by specifying a corresponding terminal type filename in the ";ENV=" parameter of the output file equation. I know this works under MPE V. If you're using XL, you might follow up with the response center.

HP 3000 RELOAD

QUERY:

Jerry Schwartz (SIG 12/MESS 5): I take exception to V. James Krammes' reply to Billy Bordelon's query (see SIG 12, Messages 2 and 3 or November 1989 ARISTALK). It once was good practice to get MPE up as quickly as possible and use its facilities to retrieve user files. This was primarily because Initial, the part of the system that performs reloads, was too stupid to recover from most errors. This, however, to a large degree has been fixed.

I recommend doing a full reload be-

ARISTALK

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The SIG categories referenced in this month's ARISTALK are:

12 Site Management
26 Communications/Networking

ginning with the newest set of tapes, partial or full. At the end of the tapeset, the operator will be asked to supply another (older) set if any files are missing. This will continue until all files are restored or the operator declines to supply more tapesets. The net result of this process is the system is restored to the state it was in when the latest SYSDUMP

was done. There will be no problems with missing file creators or old files mysteriously reappearing.

I only recommend doing an accounts reload and then restoring files when it's necessary to bring one particular application up as soon as possible. Its files could be restored first.

Reappearing obsolete files can cause problems such as running out of disk space. Some applications use files as checkpoint mechanisms and could get confused. Recovering from either problem would be a tedious nuisance.

In addition, the process is almost certain to bollix up the UDC entries in COMMAND.PUB.SYS. The directory, reloaded from the newest tape, would have pointers into the corresponding COMMAND.PUB.SYS. But a possibly obsolete COMMAND.PUB.SYS file would be RESTORED from a full backup tape and wouldn't match if any UDC changes had been made between the time the full backup was done and the most recent partial backup was done. In such cases, the system would be unable to locate the UDC files that it knew were needed.

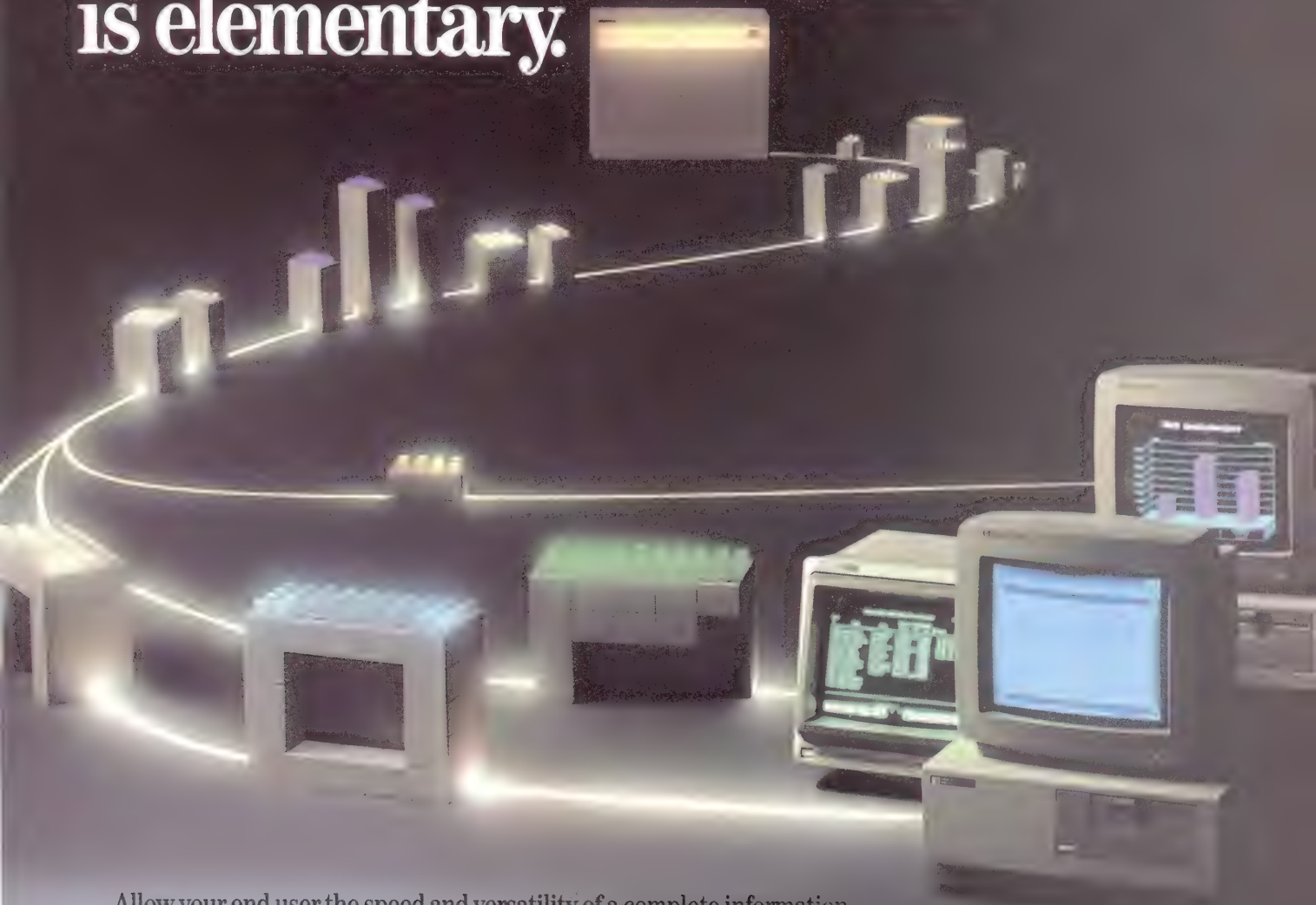
To compound that problem, if HP's security monitor has the right options set, the affected users would be unable to log on. I recommend doing a full reload beginning with the newest tapeset.

V. James Krammes (SIG 12/MESS 7): I never claimed my way was best, just the way I've done it for the past 10 years.

A couple of notes, though:

1. I've never experienced any problems with UDCs this way. 2. Not having HP's security monitor, I can't comment on the affect various reload options might have on that product. 3. I use this method mainly for speed and have found that the accounts reload/restore option is faster than the multiple tapeset reload you described. When a relative backup is 13-15 tapes and a full backup is over 18 tapes, it does become important. ■

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Over There

Ten years ago, when information systems (IS) professionals

were the only people who bought and used software, all an American software company had to do to sell in Western Europe was to hire a distributor and perhaps translate a sales brochure. There was no need to translate documentation and screens.

Because English is the international language of computing, computer professionals who spoke a language other than English were expected to use English for computer-related tasks. They read English screens and wrote English (or English-like programming languages) on their terminals; usually documentation and training were available only in English.

One reason that software's English-only days have ended is that many office workers and managers with no data processing training now do all or part of their work on PCs or terminals. In Germany and Northern Europe, most employees learned English in school, but that doesn't mean they will be as willing to use English at their terminals as their colleagues in data processing are. In France and Southern Europe, employees are far less likely to know English well enough to read screens and menus.

Up until five years ago, North American companies were software providers to the world. Using English was simply part of using software. Very few North American software companies felt the need to localize or even translate documentation for software products for markets in Western Europe. If the local markets did require translation, distributors and dealers would be willing to foot the bill in order to sell the product.

North American dominance over the software marketplace in Western Europe is waning as quickly as European software companies are proliferating. Now that Germans, Swedes, the French, and others have local products written in their own national languages, North American companies can't compete without localizing or, at minimum, translating all or parts of their product and corporate literature.

Localization is more than simply translating a product. Translating software screens or documentation from English to French means converting the English text to French text. French speakers from France or Canada will be able to read and understand a translated text. But mere translation is often not enough to make end-users *feel* like a product was created with them in mind.

Graham Valentine, an International Account Manager for HP in Geneva, defines localization as the process of putting the look and feel of the local market into a product. For example, a French text for the Canadian market that displays time and date in North American style, refers to monetary amounts in dollars instead of francs, and uses idiomatic expressions from Canadian French, will not be popular with the French, the Swiss or the Luxembourgish if they can buy a product written specifically for them. A product that is localized serves a smaller market than a product that is translated. Therefore, North American companies that sell software in Western Europe need to make careful choices about what to localize, what to translate and what to leave in English.

Lyse Teasdale, manager of Development Services at Cognos Inc. (Ottawa, Canada), discussed how Cognos handles the diversity of languages and various degrees of English mastery in Western European countries. The decisions that



Cognos made about where, what products and to what extent localization is needed are instructive to other software companies with plans to sell on the continent.

Make a distinction between software that will be used by computing professionals and end-user products. Teasdale explains that there wasn't a great need to produce other language versions of PowerHouse because most features of that fourth generation language are used exclusively by technical audiences who feel comfortable with English.

PowerHouse consists of QUIZ, QUICK, QTP and QDD. QDD, the data dictionary and QTP, the volume transaction processor, are used only by IS professionals. QUICK, the online transaction processor, has facilities for building menus and data-entry screens. The report generator QUIZ is the module with the greatest potential demand for translation because some end users learn how to generate their own reports, but it has not been localized yet.

Whenever possible, choose a user interface that reduces the need for localization. Command-driven programs require more mastery of a foreign language than menu-driven programs. It's easier for a nonEnglish-speaking user to type an English command than to comprehend a menu selection. Cognos' PowerHouse ARCHITECT is menu-driven in the DEC version and command-driven (Cognos uses the term *syntax-driven*) in the HP

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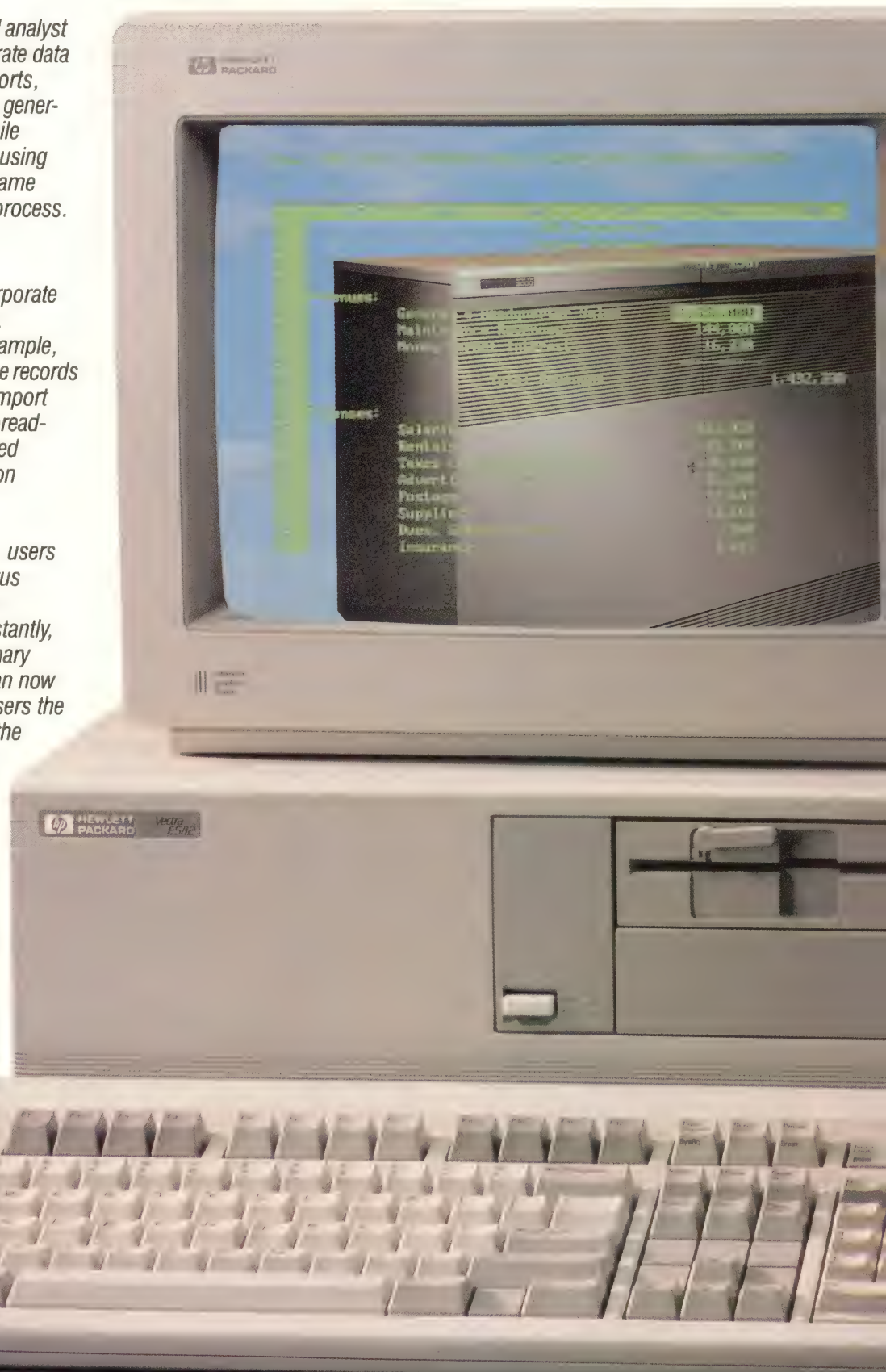
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version. The HP version of PowerHouse ARCHITECT is not translated. The DEC version required French translation because the menu-driven user interface requires the user to access the dictionary while the command-driven version does not.

Make a list of the parts of the product that include text and decide when these parts need to be localized: Which texts need to be available in the language of the target market before the product becomes available, which can come out after the initial release, and which can remain in English. Cognos prioritizes its localization needs as follows:

1. Sales and marketing literature.
2. Online help for end users.
3. Courseware.
4. Technical documentation.
5. User interface.

In general, Cognos' policy is to localize the parts of the product that the least technical person will see. Press releases, advertisements and product brochures are done in Spanish, Italian, Dutch and Swedish versions even though these are relatively small markets.

French is the only language into which all parts of the product have been translated, and the next most complete localization is in German where everything but the user interface has been localized.

Consider both the size of a market and the degree to which English products are accepted before deciding upon the languages to put first in line for translations and localization. Cognos introduced a French version of ARCHITECT in 1987 in response to the French market rather than the French Canadian market closer to their headquarters.

Although the German-speaking market for software products is potentially larger than the French, Cognos has translated almost all product materials for its French version of PowerHouse. However, the German translation is limited to online help, messages and documentation. The majority of Germans who use software products typically are better able

and more willing to use English than their French counterparts.

Despite having offices in the Netherlands, Sweden and Belgium, Cognos has not felt the need to provide documentation or online help in Dutch or Swedish because almost all end users have sufficient mastery of English.

Localization is expensive. Valentine estimates that it costs over \$100,000 per language to localize even a simple software product. Although localizing the product may increase sales, consider whether the incremental sales potential justifies the costs involved in programming man hours, translation fees, printing costs, software, maintenance and a myriad of hidden expenses.

Exercise strict quality control and testing measures before you do a full-scale release of any translated product. "Better no translation at all than a bad one," says Teasdale. Cognos insists upon having native speakers write all of its translations. Although much of the translation is done in Ottawa, any document translated in Canada is reviewed by native speakers in the target user community before it is released. Cognos also sends a questionnaire to everyone who purchases a localized version of their product.

Don't expect the localizations created specifically for one target market in the Western European market to work in other parts of the world. Although Cognos has South American distributors who have translated materials into Spanish for their local markets, they do not distribute this material in Spain. A Spaniard reading documentation intended for Venezuelans would find strange idioms, unfamiliar computer terminology and incomprehensible examples.

Cognos has decided not to incur the expense of localizing PowerHouse and ARCHITECT specifically for the French Canadians who use it. Instead, they have eliminated the need for a separate version by using a "high-quality international French" designed for the European market but acceptable to French-speaking Canadians.

The localization effort should begin with programming practices that insure localizability. Cognos now insists that its

software developers write code that supports 8-bit ASCII characters. Although English requires only 7-bit ASCII, 8-bit ASCII support is essential for displaying and printing the extended character sets required for European languages. Some of the company's earlier programs were written in 7-bit ASCII and had to be re-engineered for the French and German versions.

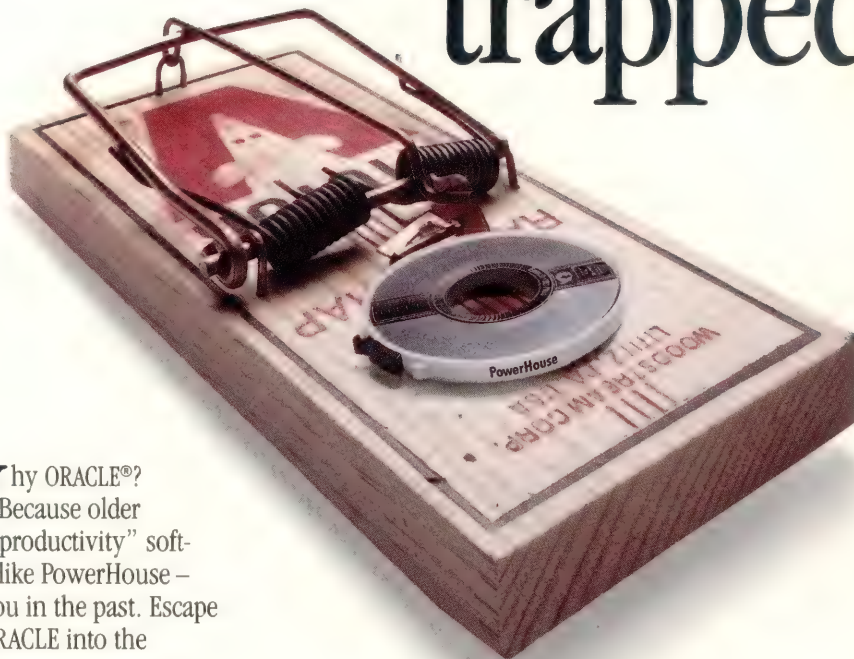
Cognos has gone beyond requiring 8-bit ASCII support in its efforts to insure that future programs can be localized. Because Hewlett-Packard's Native Language Support (NLS) is included on compilers for MPE/XL, HP-UX and Vectra PCs, Cognos programmers can separate text strings from code and then refer to the text files with pointers. For example, when a programmer uses pointers and messages instead of including text in code, the programmer can replace English error messages with foreign language messages without having to alter the code.

Valentine also advises programmers to avoid screen formats that use boxes around words because the boxes aren't likely to be the right size for foreign language versions. Nor should the representations for times and dates on products that will be sold outside North America be hardcoded. Valentine sums up the problem, "You build a support nightmare when you don't think about localization at the beginning of a software project."

In 1990, creating a localized version of a software product gives your company a competitive advantage. By 1992, it's possible that the European Economic Community's "European Content" laws will require North American companies to localize software products before being allowed to sell in the Common Market. Cognos will be ready — how about your company?

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HP Unveils 24 New Products

Largest Product Announcement In 50-Year History

"The largest systems introduction in our 50-year history" is how Hewlett-Packard executives described the company's January 10 introduction of 24 new systems and servers.

Ushering in the 1990s in grand fashion, HP unveiled its 13 new multiuser systems and 11 servers at a press conference held at Rockefeller Plaza in New York City.

With the announcement, HP now says it offers the industry's broadest line of computer systems based on a single RISC architecture.

"With this introduction, HP solidifies its leadership in RISC technology and offers customers a systems product line with more choices to meet their needs," said Doug Chance, HP executive vice president, Networked Systems Division.

The new HP-PA products extend both the HP 3000 and 9000 product lines.

Included in the announcements are high-end symmet-



HP's announcement included a new line of entry-level minicomputers designed to support 16 to 240 users.

ric multiprocessing systems based on HP's new complementary metal-oxide semiconductor (CMOS) chip technology. These two new HP 3000 and 9000 systems offer performance comparable to mainframes at a much lower cost, according to HP.

3000 Systems

HP introduced eight new multiuser HP 3000 systems, including top-of-the-line systems that triple the

performance of HP's high-end commercial product line.

"HP's high-end commercial systems offer the performance of mainframes, but cost far less and are much easier to operate," said Richard W. Sevcik, general manager of HP's Commercial Systems Division. "Customers now have more cost-effective and flexible solutions for their OLTP applications."

"This announcement demonstrates the inherent strength of our RISC technol-

ogy — rapid gains in price/performance with a growth path into the next century," he added.

In addition to expanding its high-end systems capabilities, HP extended its HP-PA line at the low end and cut in half the entry price point for an HP 3000 RISC-based system.

■ High-End Systems:

The new HP 3000 Series 980/100 and Series 980/200, the

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most powerful computers HP has ever offered, are the first systems to use advanced complementary-metal-oxide semiconductor (CMOS) technology.

The Series 980/100, based on the industry's fastest single-chip uniprocessor, is expected to operate at 60 to 70 transactions per second (TPS), as measured by the TPC-A benchmark. TPC-A is the industry-standard benchmark for comparing OLTP performance across systems as defined by the Transaction Processing Performance Council.

The Series 980/200 offers fully symmetric two-way multiprocessing and is expected to deliver more than 100 TPS, triple the performance of HP's previous high-end system, the Series 960. The HP MPE/XL operating systems transparently distributes the workload across both processors for maximum performance and reliability. Existing HP 3000 applications can benefit from this increased performance with no modification.

Together with HP's RISC architecture, the new CMOS technology allows HP to design extremely dense chips that increase processor performance at a much lower price and with higher reliability.

According to HP, the new high-end systems offer equivalent performance to an IBM 3090 mainframe at one-third the list price, and the same performance as a DEC VAX 9000 at two-thirds the list price.

In addition, the Series 980/200 and Series 980/100 are air-cooled and require a

fraction of the floor space and electrical power that is needed for competitors' systems in the same performance class, according to HP.

Customers with the Series 950, 955 and 960 systems can

upgrade easily to the new high-end systems with a simple board exchange.

■ **New Midrange Addition:** The HP 3000 Series 949 introduced sets a new standard for midrange perform-

ance at a U.S. list price of \$230,000, according to HP.

It uses the same single-chip VLSI (very-large-scale integration) processor as the Series 955 and has been measured in an audited test at 31.6

HP Offers MRP II Application on UNIX

Also announced at the New York City product introduction is a major initiative by HP to increase its presence in the manufacturing market.

New products unveiled include HP Financial Management, a new financial application; major enhancements to HP Manufacturing Management II, HP's MRP II (Manufacturing Requirements Planning) solution; and HP OpenMFG, the first MRP II software solution based on a UNIX system to be offered worldwide by a major computer systems supplier. HP OpenMFG is a complete solution for managing the plant-wide operations of batch process, repetitive and discrete manufacturers. It offers comprehensive functionality for medium to large manufacturers.

With the addition of HP OpenMFG, HP now offers an alternative solution for manufacturers seeking applications based on a UNIX system.

HP OpenMFG runs on the HP 9000 Series 800 systems. As with the HP 3000 Series, the HP 9000 Series 800 family spans a wide range of system configurations, from eight users on the Model 808 to 400 connections on larger models. Such scalability enables customers to expand their sys-

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|------|----|---------|---------|---------|------|----------------|----------------|
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| 1100 | | 1100.00 | 1100.00 | 1100.00 | 0.00 | 0.00 | 0.00 |
| 1200 | | 1200.00 | 1200.00 | 1200.00 | 0.00 | 0.00 | 0.00 |
| 1300 | | 1300.00 | 1300.00 | 1300.00 | 0.00 | 0.00 | 0.00 |
| 1400 | | 1400.00 | 1400.00 | 1400.00 | 0.00 | 0.00 | 0.00 |

HP announced new manufacturing products, including enhancements to Manufacturing Management II.

tem's processing power in proportion to their manufacturing needs, according to HP.

In addition to running under HP-UX, HP OpenMFG is built upon a relational database complying with ANSI-standard SQL. It's written in PROGRESS, a fourth generation language and relational database from Progress Software Corp., Bedford, MA. Customers who purchase the source code version of HP OpenMFG can modify the application to meet their particular company needs.

Some of OpenMFG's features include pop-up windows that allow both data entry and retrieval, the latter being helpful when the user has forgotten a required name or number. Online help and user-programmable function

keys enhance the application's use and ease of implementation.

One of the most important aspects of HP OpenMFG is its open architecture that facilitates linkages to other programs and levels of computer integrated manufacturing (CIM). By complying with a UNIX system and SQL standards, HP OpenMFG can exchange information with other software programs throughout the company.

Prices range from \$65,000 to \$385,000, depending on product level and CPU size of the HP 9000 Series 800 minicomputer. HP OpenMFG is expected to start U.S. shipments in the spring of 1990. UK, Germany and French versions will be available soon afterwards, with other major language versions to follow.

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TPS for the TPC-A benchmark. This is approximately the same OLTP performance of the three-processor DEC 6430, but at half the price. The Series 949 performance is about twice that of IBM's largest AS/400 system and comparable to low-end IBM 3090 mainframes, according to HP.

The Series 949 is a simple processor-board upgrade from the Series 935.

■ **New Entry-Level Systems:** The HP 3000 Series 922LX, 922RX, 922 and 932 are new low-priced extensions to the HP 3000 family. The Series 922LX, 922RX and 922 provide OLTP performance of 7.7 TPS using the TPC-A benchmark, while the Series 932 offers 60 percent greater performance than the Series 922.

Supporting 16 to 240 users, they are designed for small-to medium-sized businesses, departments of large corporations or branch offices. HP offers a simple upgrade path for customers to move the low-end Series 922LX to the Series 932 within the same system cabinet.

Each of the systems, including the processor, memory digital audio-tape (DAT) backup and up to 2.7 GB of data storage, can be configured in a compact unit smaller than a two-drawer filing cabinet. The new entry-level HP 3000 systems are well suited for standard office environments because they require no special cooling and can be plugged into standard power outlets.

New DAT technology tape drives can store 1.3 GB of data on a single pocket-sized cas-



The HP 9000 Model 870S/200 is HP's first implementation of symmetric multiprocessing. Five new HP 9000 Models use HP Precision Architecture and the HP-UX operating system.

sette tape in about two hours. Because of the high capacity on a single tape, backup of many system configurations can be done automatically without requiring a computer operator to load multiple tapes.

■ **HP MICRO 3000 RX:** The HP MICRO 3000 RX, fully compatible with the HP 3000 product line, is a complete entry-level business system that can support up to 24 users. U.S. list priced at less than \$18,000, it includes a system disc, tape cartridge, console, 16 terminal ports, operating system, database and HP Easytime, a menu-driven interface that simplifies system operation.

Prices for all HP 3000 Series 900 computers include the HP MPE/XL operating system. Prices for the Series 932, 922, 922RX and 922LX are for complete configurations including disc and tape storage.

9000 Systems

HP also introduced five new HP 9000 multiuser computers based on its HP Precision Architecture (HP-PA) RISC technology, including a multiprocessing computer that provides four times the performance of the previous high-end HP 9000 model.

The new low-end, mid-range and high-end systems nearly double the HP 9000

product line, offering performance range from seven up to 90 mips (millions instructions per second) in a single object-code compatible family based on a UNIX system, according to HP.

"Today's announcements bolster HP's position as the industry-leading supplier of computers based on a UNIX system," said Bernard Guidon, general manager of HP's General Systems Division. "In addition to having the broadest range of multiuser computers within a single compatible UNIX system family, HP is the only major vendor with strong solutions across personal computers, workstations and minicomputers."

HP also announced new software and peripherals for use with the new HP 9000 systems, including the first use of digital-audio-tape (DAT) technology for reliable, high-capacity data storage in a compact unit.

■ **High-End Systems:** The new Models 870S/100 and 870S/200 are the first HP 9000 systems based on an advanced submicron CMOS implementation of HP-PA. This chip technology allows the Model 870S computers to deliver higher performance without special environmental requirements.

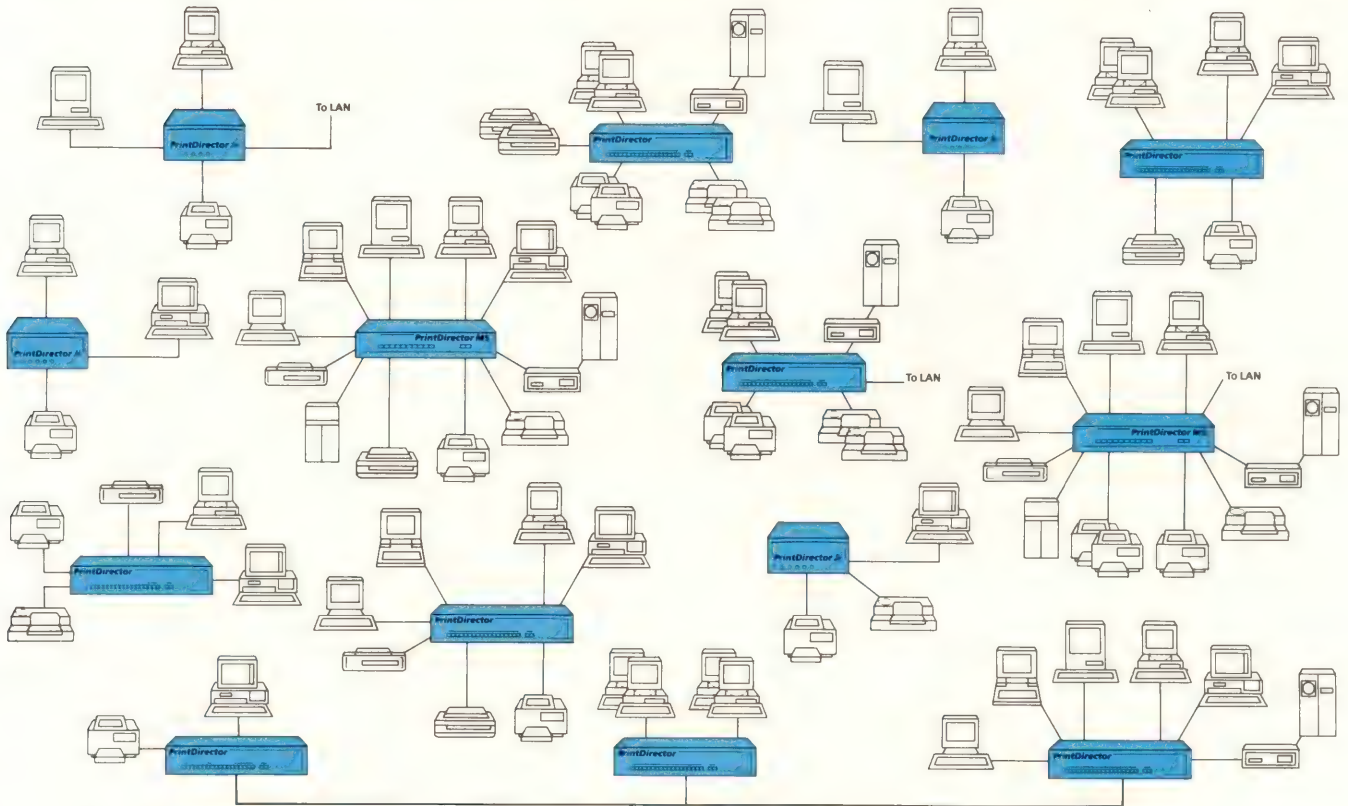
The top-of-the-line Model 870S/200 with two-way multiprocessing offers up to 90 mips performance, which is four times faster than the Model 855S. The uniprocessor Model 870S/100 is rated at 50 mips. Both systems are available as a simple board upgrade from Model 850S or 855S systems.

U.S. List Prices and Availability

| System | U.S. List Price | Availability |
|------------------------|-----------------|---------------------|
| HP 3000 Series 980/200 | \$1,090,000 | December 1990 |
| HP 3000 Series 980/100 | 685,000 | Fourth quarter 1990 |
| HP 3000 Series 949 | 230,000 | Immediate |
| HP 3000 Series 932 | 115,000 | March 1990 |
| HP 3000 Series 922 | 80,000 | March 1990 |
| HP 3000 Series 922RX | 65,000 | March 1990 |
| HP 3000 Series 922LX | 35,000 | March 1990 |
| HP MICRO 3000RX | 17,950 | Immediate |

HP introduced eight new multiuser HP 3000 systems.

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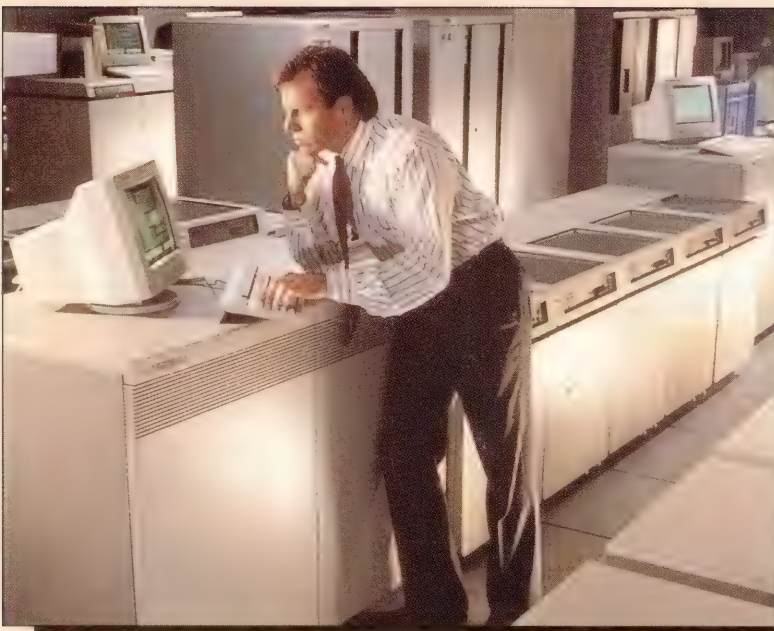
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CIRCLE 166 ON READER CARD



HP's new high-end HP 9000 and HP 3000 computers use advanced submicron CMOS chip technology to deliver the processing power required by large data-processing environments.

Because the HP-UX operating system supports symmetric multiprocessing, it can transparently distribute the workload between multiple processors for the best possible system performance and reliability, according to HP. No modifications are needed for existing applications to benefit from this increased multiprocessing performance.

With higher performance than the top of the DEC VAX 6000 line, HP's Model 870S/200 has equivalent performance to the entry-level DEC VAX 9000 at a fraction of the cost, according to HP.

With the new Model 870 systems, HP also has expanded the previously available system memory six times to offer 768 MB, and has more than tripled the disc-storage capacity to 83 GB.

■ **Midrange Systems:** The Models 845S and 845SE, rated at 22-mips performance, are small modular systems ideally suited for applications requiring high performance

for departments of 16 to 100 users.

Available as a field upgrade to the Model 835S, the Model 845S offers a 50 percent performance boost.

■ **Entry-Level System:** The Model 832S is a new low-priced system that offers midrange performance of 12.6 mips and supports 32 to 64 users. In addition to housing a powerful RISC processor, the Model 832S system includes reliable, high-capacity disc and tape drives into a streamlined deskside unit smaller than a two-drawer filing cabinet. It comes in an integrated package with pre-

loaded software for easier, more convenient installation.

Standard with this compact system is a DAT drive offering 1.3 GB of storage on a single tape cassette. The capacity on a single DAT cassette hold the equivalent data of 10 magnetic tapes that reduces the frequency of operator intervention.

An upgrade path is available from either the Model 808S or 815S low-end computers to the

Model 832S.

Additionally, HP has reduced the U.S. list price for the Model 835S from \$45,000 to \$37,000 and the U.S. list price for the Model 835SE from \$101,950 to \$80,000.

New Servers

HP said it strengthened its position in client-server computing with the introduction of the first 10 HP 3000 servers and a new member of the existing HP 9000 server family.

Based on HP-PA technology, the servers are targeted at the emerging client-server computing need of customers.

"Today's introduction strengthens HP's leadership in client-server computing," said Willem P. Roelands, vice president and general manager of HP's Computer Systems Group. "When combined with our client-server software, these servers provide customers with the tools to make better use of their investments in intelligent PCs and workstations.

The HP 3000 servers run the HP MPE/XL operating system, and the HP 9000 servers run HP-UX.

■ **HP 3000 Server Family:** The new HP 3000 servers include the high-end Servers 960, 955 and 950; midrange Servers 949, 935 and 925; and low-end Servers 932, 922, 922RX and 922LX.

The servers offer customers a wide range of choices, from the entry-level Server 922LX for 32 users to the high-end Server 960 supporting hundreds of PCs and 85 GB of disc storage.

The HP 3000 servers are targeted at the emerging market for client-server OLTP, where transaction-processing applications are distributed across networks of PCs. To help customers implement client-server OLTP applications, each HP 3000 server comes standard with the HP VPLUS/Windows interface, PC networking software and HP NewWave Office system services.

With HP VPLUS/Windows, HP 3000 and PC applications from multiple 3000 servers and systems can be displayed simultaneously on the PC in overlapping windows.

This gives the PC user a

U.S. List Prices and Availability

| System | U.S. List Price | Availability |
|----------------|-----------------|---------------------|
| Model 870S/100 | \$419,000 | Fourth quarter 1990 |
| Model 870S/200 | 689,000 | December 1990 |
| Model 845S | 59,500 | Immediate |
| Model 845SE | 130,000 | Immediate |
| Model 832S | 51,200 | March 1990 |

All prices include the HP-UX operating system license.

HP introduced five HP 9000 multiuser computers based on its HP-PA RISC technology.

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single, integrated view of different applications located on multiple systems across a network. Also, users easily can switch from one task to another, according to HP.

■ **HP 9000 Server Family:** The new HP 9000 Model 645SV can act as a general-purpose server for a range of client-server applications. These include database and communications applications in the manufacturing, telecommunications, financial-services and state and local government markets.

The Model 645SV offers a CPU rating of 22 mips, which is 1.5 time the performance of the Model 635SV, HP's first server. It comes with an HP-PA CPU, a two-user HP-UX

server license, 32 MB of memory, 1.3 GB of disc storage, and networking software and hardware. Networking software includes LAN communications protocols, Network File System Services, ARPA Services, X Window System and the HP LAN/9000 Series 800 link.

The Model 645SV is object-code compatible with the Model 635SV and all HP 9000 Series 800 systems. This means that client-server applications written for the Models 645SV and 635SV will run on all HP 9000 Series 800 systems without recompilation. Additionally, a multiuser upgrade is available.

The HP 3000 Servers are scheduled to be available in

U.S. List Prices and Availability

| System | U.S. List Price | Availability |
|----------------------|-----------------|--------------|
| HP 3000 Server 960 | \$485,000 | April 1990 |
| HP 3000 Server 955 | 385,000 | April 1990 |
| HP 3000 Server 950 | 305,000 | April 1990 |
| HP 3000 Server 949 | 275,000 | April 1990 |
| HP 3000 Server 935 | 150,000 | April 1990 |
| HP 3000 Server 925 | 80,000 | April 1990 |
| HP 3000 Server 932 | 135,000 | April 1990 |
| HP 3000 Server 922 | 90,000 | April 1990 |
| HP 3000 Server 922RX | 65,000 | April 1990 |
| HP 3000 Server 922LX | 35,000 | April 1990 |
| HP 9000 Model 645SV | 84,000 | Feb 1, 1990 |

Eleven new servers help strengthen HP's position in client-server computing.

April 1990. The HP 9000 Model 645SV can be ordered now with delivery scheduled to begin in March. In addition, a field-installable board

upgrade from the Model 635SV to the Model 645SV is U.S. list priced at \$37,000 and is scheduled for availability in March.

HP Announces Windows-Based User Interface For HP 3000 OLTP Computer Applications

HP also introduced VPLUS/Windows, a software product that allows PC users to utilize existing HP 3000 online transaction-processing (OLTP) applications with a Microsoft Windows-based graphical user interface.

HP VPLUS/Windows also integrates HP 3000 applications with HP NewWave. Because the HP 3000 require no changes, investment in data applications is extended, providing a path to a client-server computing environment.

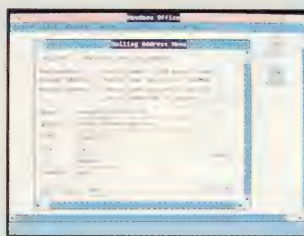
Client-server processing transfers specific user-oriented tasks to desktop workstations, such as PCs, while maintaining database processing and management in a back-end system on a network.

HP VPLUS/Windows transfers the front-end of an

HP 3000 application to the PC and allows existing HP 3000 programs to function as client-server applications. The PC can perform tasks, such as maintaining and managing forms, required by OLTP applications that reside on HP 3000-based systems and servers.

This approach lowers network traffic when compared to PCs running terminal-based applications. It also leads to more efficient use of local processing power at the PC and the database-processing power of the HP 3000.

With HP VPLUS/Windows, HP 3000 applications look and act like HP NewWave and windows programs, using graphic icons to access programs and use them in a windows environment. This helps



VPLUS/Windows supports cooperative computing.

reduce training time. A context-sensitive, PC-based help facility also can be constructed easily to assist the user in working with HP 3000 application and database forms.

HP VPLUS/Windows allows a combination of PC and minicomputer-based applications from multiple HP 3000 systems to be displayed at the same time in overlapping windows. This gives the PC user a simple, consistent way of viewing and working with

different software programs located on multiple systems across a network.

Because most HP 3000 software applications can use the HP VPLUS interface, thousands of existing HP 3000 applications can be used with HP VPLUS/Windows with no modification, according to HP.

HP VPLUS/Windows is scheduled to be available in August 1990. It will be included in the price of the new HP 3000 servers, or can be purchased separately for other HP 3000 systems. Sold separately, the PC software is \$150, and the server software ranges from \$1,000 for low-end HP 3000 systems to \$9,800 for the HP 3000 Series 980/200. Customers who already have HP 3000 systems can add the HP VPLUS/Windows interface.

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CIRCLE 146 ON READER CARD

HP Offers Enhanced PC Emulator, SoftPC

HP has announced the availability of SoftPC Synthetic hardware, Release 2.0, an advanced PC software emulator that enables UNIX system users to run MS-DOS applications in a workstation's high-performance windowed environment.

SoftPC 2.0 provides enhanced graphics adapter (EGA) display emulation and scalable DOS windows.

EGA display emulation provides overall DOS graphics performance and functionality, offering an enhanced color display (16 simultaneous colors from a palette of 64) and higher resolution. With scalable DOS windows, SoftPC 2.0 users can expand a SoftPC window to fill the majority of the workstation display. The expanded window size is 150 percent larger than the window size in previous versions of SoftPC.

Other features include faster graphics performance, autofreeze, 3 1/2-inch IBM-

formatted floppy disc support and full emulation of the 80286 CPU and 80287 numeric coprocessor.

HP Ports Device Interface System To HP 9000/300

HP has released HP Device Interface System (HP-DIS) on the HP 9000 Series 300.

HP-DIS previously was available on the Series 800. HP-DIS for the Series 300 features a memory-resident run-time portion, while the run-time portion on the Series 800 is disc-based. It accelerates the development and testing of computer interfaces to various intelligent I/O factory floor devices.

HP-DIS enables creators of industrial automation software solutions to produce reliable communications links between the HP 9000 Series 300 family and the HP-PA family, as well as factory devices or networks that communicate over the RS-232-C serial link.

Prices for the HP-DIS range from \$1,275 to \$3,825 depending on the system.

HP-IVI Debuts For Series 800 HP-PA Systems

HP has released HP Interactive Visual Interface (HP-IVI) on the HP 9000 Series 800 HP-PA systems. This complements the earlier availability of HP-IVI on the Series 300 family.

HP-IVI is a graphical user-interface environment. It is built upon the industry-standard X Window system that permits the building of interfaces that combine 2-D process graphics with 3-D widgets. HP-IVI reduces user-interface development and maintenance time by approximately 50 to 70 percent.

HP-IVI offers a user-interface building, plus an application programming interface. Its integration of 3-D widgets with 2-D process graphics in one consistent environment allows for dynamic point-and-click data manipulation.

FCS 9000 To Complement Production Planning Systems

HP has introduced the Factory Control System 9000 (FCS 9000), a family of integrated, modular shop floor solutions for discrete manufacturing.

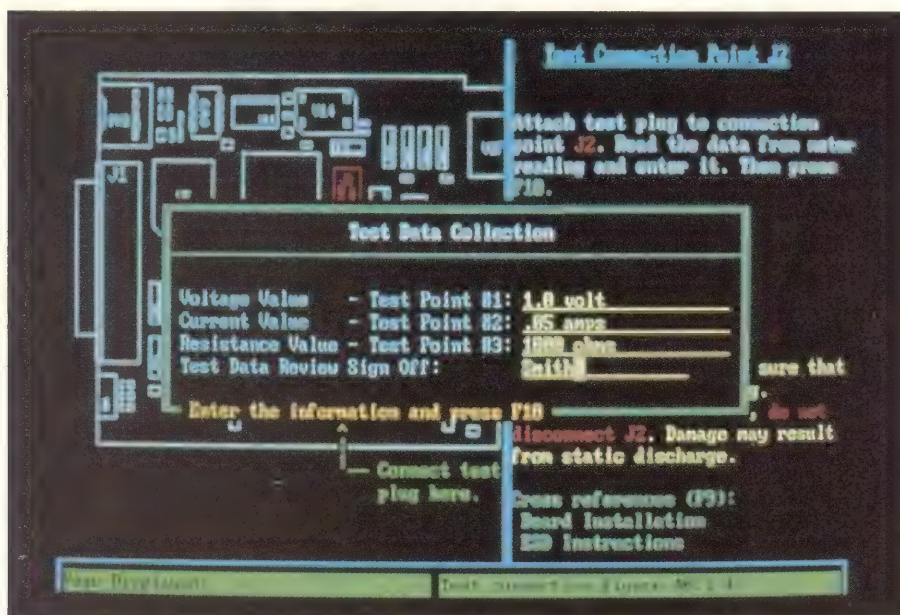
FCS 9000 was developed to complement production planning systems such as MRP and MRP II. On the manufacturing floor, the system collects, validates and distributes data to required applications in a timely fashion, thus eliminating the need to enter redundant information and ensuring data integrity.

The price for the system varies depending on the functions selected and the number of users.

HP Introduces Optical Disk Library System

HP has introduced the HP Series 6300 Model 20GB/A, its second rewritable optical-storage product for HP workstations.

The optical-disc library system stores 20.8 GB of data on 32 5 1/4-inch rewritable optical-disc cartridges. The system features an



HP's new Factory Control System 9000 complements production planning systems such as MRP and MRP II.

HP-designed autochanger mechanism and two integrated drives developed by Sony Corp. specifically for use with the HP autochanger.

HP offers the library system for use with the HP 9000 Series 300 workstation family. The rewritable optical drives in the Model 20GB/A conform to the ANSI and ISO continuous-composite-format definition and are compatible with HP's standalone optical-disc drive and the rewritable drives and media of other manufacturers.

The new system with two rewritable drives and one 650-MB rewritable optical-disc cartridge is \$33,500. Fully loaded with 32 rewritable cartridges, the system is \$39,950. Individual cartridges are \$249.

EXPRESS Integrates STDLIST Analysis

Operation Control Systems has added STDLIST output processing functionality to EXPRESS, its batch job scheduler for the HP 3000.

These new capabilities eliminate the need for operators to review STDLISTs for errors at the end of every production run. The system proofs these lists automatically, flags errors and takes the appropriate action.

The new functionality allows a site to define spoolfile analysis rules to provide real-time review of job output. The system examines spooled output while in the ready and locked states to determine its disposition and to set job completion status for subsequent job scheduling decisions by EXPRESS. Contact OCS, 560 San Antonio Rd., Palo Alto, CA 94306; (415) 493-4122.

Circle 400 on reader card

DynaComm Supports NewWave Environment

Future Soft Engineering Inc. began shipping version 2.1 of DynaComm Asynchronous Edition, communications software for the Microsoft Windows environment.

The new version includes enhancements for Windows and support for the HP NewWave environment. It also includes a "point-and-click" communications manager called Director, that not only integrates all the functions of a phone dialer, but also allows you to execute scripts created with DynaComm's script language.



DynaComm Asynchronous Edition 2.1 is a communications package with network support for HP's NewWave graphical user environment.

Other additions to the system include network support for DEC's LAT protocol; increased sample scripts for DynaComm's script language; the addition of a complete computer Assisted Instruction course; HP 700/90 terminal emulation; and enhanced multichannel Dynamic Data Exchange (DDE) capabilities that let DynaComm act as multiple servers and multiple clients at the same time.

DynaComm is priced at \$295 and runs under Microsoft Windows, Version 2.1, on an IBM AT, PS/2 or compatible personal computers with an Intel 80286, 80386 or 80486 microprocessor. Registered users of Version 2.0 of the Asynchronous Edition may upgrade to Version 2.1 for a \$50 upgrade fee.

Contact Future Soft Engineering Inc., 1001 South Dairy Ashford, Suite 203, Houston, TX 77077; (713) 496-9400.

Circle 391 on reader card

Infocentre Offers Native Mode Of Speedware

Infocentre Corp. has released the second version of the full native mode of Speedware, its fourth generation productivity environment.

This version will run in native mode on the HP 3000 Series 900 minicomputers, and can automatically generate switch stubs to run compatible mode routines. Native mode Speedware running on a Series 950 minicomputer has three to six times the throughput of Speedware running on a Series 70. Speedware supports Omnidex 2.04 and both IEEE and HP 3000 real numbers.

Contact Infocentre Corp., 7420 Airport Rd., Suite 201, Mississauga, Ontario Canada L4T 4E5; (416) 678-1841.

Circle 364 on reader card

V.I. Corp. Extends Support For RISC Platforms

V.I. Corp. made available DataViews 7.0 for additional RISC machines. DataViews now supports all RISC processor architectures including HP-PA. DataViews runs on the HP 9000 Series 800.

DataViews is a set of tools for prototyping, building and delivering application-specific dynamic graphical user interfaces. It is used by applications developers to dynamically represent and track real-time data, giving the user complete graphical interaction with the application.

DataViews 7.0 is priced at \$17,700. Contact V.I. Corp., Amherst Research Park, Amherst, MA 01002; (413) 253-3482.

Circle 398 on reader card

Execucom Releases IFPS/Plus

Execucom Systems Corp. has announced release 4.0 of IFPS/Plus (Interactive Financial Planning System).

IFPS/Plus is a component and analytical engine of Executive Edge, the company's new Executive Support System product. Enhancements include a new full-screen "browse" subsystem allowing users more control and manipulation of models, data files and databases; a full-screen, context-sensitive help facility; personalized function key



DRAWBASE from CADworks Inc. offers seamless integration of database management and CAD capabilities.

definitions; and easier management of information relating to an application. It also offers increased functionality and integration with Execucom's other products.

Under the new release, models and data, when necessary, reside in memory areas larger than 16 MB. IFPS/Plus 4.0 is available on HP systems.

Contact Execucom Systems Corp., 9442 Capital of Texas Highway N., Arboretum Plaza One, Austin, TX 78759; (512) 346-4980.

Circle 396 on reader card

DRAWBASE Integrates CAD Overlay

CADworks Inc. is shipping DRAWBASE version 106.2 with CAD Overlay, a tool to assist users with the conversion of hardcopy drawings to CAD.

CAD Overlay is licensed by CADworks from Image Systems Technology Inc. (Troy, NY). With this capability, a drawing can be scanned, loaded into DRAWBASE and the user can trace over the scanned image and control how the information is organized. CAD Overlay allows users to utilize both raster and vector data within DRAWBASE. Contact CADworks Inc., 222 Third St., Cambridge, MA 02142; (617) 868-6003.

Circle 386 on reader card

GB-Plus Disc Drives Designed For OEMs

HP has announced a family of high-capacity 5 1/4-inch disc mechanisms for OEMs and systems integrators.

The HP 97560, HP 97558 and HP 97556

offer unformatted storage capacities of 1.6 GB, 1.2 GB and 793 MB, respectively. Each model is available with a choice of ESDI, SCSI-2 single-ended or SCSI-2 differential interfaces. Features of the new mechanisms include disc rotation at 4,002 rpms for a decreased latency time, an advanced-controller design and a hybrid-servo design that combines dedicated and embedded-servo codes.

Evaluation-unit prices for the HP 97560, HP 97558 and HP 97556 are \$3,200, \$2,850 and \$2,000 respectively.

Looking Glass Interfaces To UNIX For Series 300

Visix Software Inc. has introduced Looking Glass, an icon- and mouse-driven graphical user interface to UNIX for high-end personal computers, technical workstations and X Window System terminals.

Looking Glass provides the final layer of system interface software needed to make UNIX a complete end-user product. It is available in the HP 9000 Series 300. Implemented in full compliance with the Motif look-and-feel standard from the Open Software Foundation (OSF), Looking Glass is a UNIX desktop manager that supports the entire UNIX operating system environment.

List price ranges from \$595 to \$795, depending on the hardware platform.

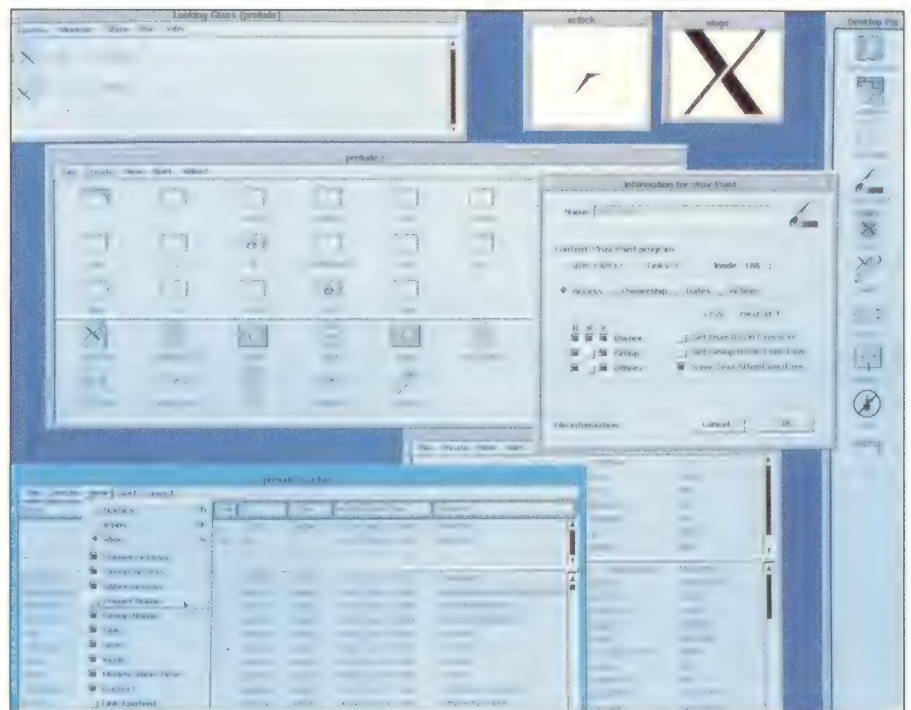
Contact Visix Software Inc., 1525 Wilson Blvd., 4th Floor, P.O. Box 12547, Arlington, VA 22209; (703) 841-5856.

Circle 399 on reader card

Unison Unveils New Version Of TAPES

Unison Software has announced an edition of TAPES, the tape library management system for HP 3000 Classic and Spectrum

Continued on page 86.



Visix's Looking Glass provides an icon- and mouse-driven graphical interface.

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| MPE/XL NATIVE MODE VERSION | 07/89 | N/A | 10/89? |
| UNIX (HP-UX) VERSION (SAME USER INTERFACE) | 03/90 | N/A | N/A |
| SUPPORT REWRITABLE OPTICAL DISC | 03/90 | N/A | N/A |
| BARMAN* (BACKUP, ARCHIVING AND RETRIEVAL MANAGER) | 03/90 | N/A | N/A |
| DBTUNE (DATABASE PERFORMANCE AND ADMINISTRATION - TOOL WITH SAME USER INTERFACE) | 1983 | N/A | N/A |

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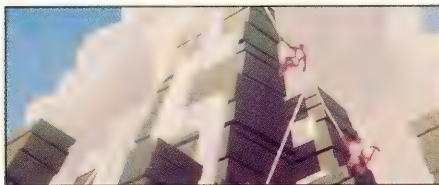
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ACCOUNTING SOFTWARE PACKAGES

[By Robert Shelley]

Something for everyone. That's a good description of the situation when it comes to accounting software products for the HP mini-

computer. This market is so well served that buyers have many choices, whatever their needs happen to be. And though the HP 9000 computer is relatively new to the marketplace, it is also beginning to be viewed as a business computer as well as an engineering machine. As a result, the availability of business software is increasing on that machine too.

Let's start with the vendors. A look at the overall market reveals that the leader is MCBA (see *Figure 1*). MCBA was one of the earliest accounting software vendors and has been very successful in selling its products through a large network of value-added resellers.

Next comes Hewlett-Packard itself. Because HP needed manufacturing and accounting software for its own operations some time ago, the company decided to turn the resulting software into a product to be sold by its sales force. The results have been impressive.

ASK, another major player in the manufacturing software market, has been able to meet the accounting needs of its customers with a good selection of accounting packages.

Collier-Jackson, now a subsidiary of CompuServe, continues to be a strong player in the financial management software market, and recently introduced its new product line called World Class Series accounting software.

Cognos, the developer of the popular 4GL language, PowerHouse, has maintained its

position in the marketplace and recently added a fixed assets module to its offerings.

Mitchell Humphrey, the newest addition to the pie chart, (see Figure 1) has been very successful at pursuing the sector of the accounting software market that is looking for full-featured products geared toward the advanced accounting user.

Smith, Dennis & Gaylord focuses on project accounting systems and marketing information systems, and integrates these packages with its financial information systems.

There are several vendors who also offer good products with impressive capabilities (see *Vendor Box*). Many specialize in a vertical market (distribution, property management, not-for-profits, etc.) and as a result do not have the large number of installations of the overall market leaders. However, be sure to include them in your search for a new accounting software package if you want to work with someone who is well versed in your industry and line of business. In addition to the vendor list accompanying this article, you should check the latest copy of *Business Systems Solutions* from Hewlett-Packard. Your HP sales representative will have a copy.

Distributed Hardware Environments

IT IS CLEAR THAT ONE OF THE MOST important applications for minicomputers in today's business world is supporting large organizations in meeting their financial reporting needs. In the past, many such organizations relied on mainframe computers for this task. But the clear trend is to disperse smaller computers to the field, giving local managers more direct control of their accounting needs and saving on communications charges.

An example is Cognos, which uses its accounting product, Multiview, in a distributed way for its own internal accounting. Cognos has offices in 38 countries. Each branch, district, and regional office records its financial data into one of nine HP 3000s. Large divisions may have their own computer, while smaller departments may access another department's computer. Some units even capture their data on a personal computer and upload it to a minicomputer.

Each month the financial data is consolidated into an operational rollup which is further consolidated into the corporate consolidation rollup. This is all completed within a few days of each month's end.

Another vendor, Oracle, recently sold its Oracle Financials product to Bechtel Corporation in a multimillion dollar site-license agreement that makes Oracle Financials the standard accounting software product throughout Bechtel. A professional engineering and construction firm headquartered in San Francisco, Bechtel has almost 18,000 employees working on projects in more than 100 countries. In addition to HP 3000s and HP 9000s, Bechtel will be using Oracle Financials on DEC VAX

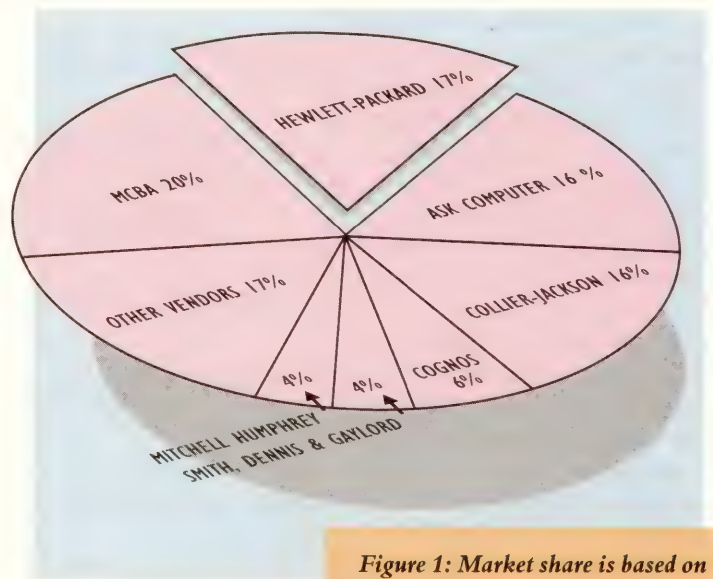


Figure 1: Market share is based on general accounting modules (general ledger, accounts payable, accounts receivable, fixed assets) installed on individual CPUs for each vendor's products.

machines, on personal computers running OS/2 and on any number of UNIX computers.

This kind of multivendor distributed hardware environment is one of the most difficult to deal with and requires additional networking capabilities. But for companies with these requirements, it's nice to know that there is a solution. And we can anticipate more vendors providing this capability in the future.

A DIFFERENT TYPE OF PROBLEM is the sophisticated CFOs' requirements for financial management and reporting. They need multicurrency capabilities, allocation of overhead, complex rollups of profit center reports, support for subsidiaries using different fiscal years and for partially owned subsidiaries and affiliates, to name just a few requirements. Mitchell Humphrey provides some interesting features for this kind of user.

- The ability to reorganize your reporting without having to make any adjusting entries.
- Foreign operations reporting based on common currency equivalents for more accurate intracompany comparisons.
- Allocations based on actuals, budgets, commitments or standards.

SOTAS International's product provides users with immediate availability of summary level data after adjustments or accruals have been entered. This is accomplished by means of a relationship file that eliminates the need to update summary balances when posting. The benefit to the accountant is that you can close the books faster and that all information is always current and available for inquiry.

HP recently announced several major enhancements to its

accounting software packages, including a name change from HP FA (Financial Accounting) to HP FM (Financial Management). Other changes include:

- Additional extensive user inquiry capabilities, with a zoom feature from financial statement to accounts to detail line items. The use of wildcards (for example, account 89* will return data for all account numbers beginning with 89) in specifying such inquiries is also supported.

- Support for multiple ledgers (including one for each currency).
- More simulation capabilities within allocations and currency revaluations.

Some vendors are breaking away from the traditional single, large account number design in order to provide more flexibility in reporting and data maintenance. Access Data, Cognos and Vocos are among those vendors. In their systems, the organization structure (companies, divisions, departments, etc.) is separated from the accounting structure (assets, liabilities, income, expense). This not only reduces the number of accounting codes that must be maintained, but more importantly allows you to assess the implications of organization changes quickly without making any adjusting entries.

Accounting On A Small Software Budget

LET'S FACE IT, some companies just do not need all the fancy bells and whistles of the top-of-the-line products, with their top-of-the-line prices. So what's a controller to do?

ASK offers a special configuration of the MANMAN Information System, called ASKMATE, that's designed for small companies. It includes software for manufacturing, order management, AR, AP, GL and a report writer, all running on a small HP 3000. ASK also offers a remote processing service called ASKNET. This service is designed for companies that want to postpone the capital investment for the needed computer hardware and software for manufacturing and financial management, as well as the hiring of data processing and support staff.

Using a service such as ASKNET allows a company to expense the cost of the service until it is more appropriate to make the capital investment associated with bringing the system in-house. You might want to find out whether other vendors of interest to you offer such a service for their products.

Another option for the shopper with a small budget is the MCBA Classic product line. According to Shannon Donnelly

HP finds that electronic payments through banks for payables and receivables in Europe is now quite common.

of MCBA, "We are known for providing some of the best performance for the price of the software, and we have object-only license options available through our dealers that make the cost of the software extremely competitive."

Yet another possibility is Vocos, which feels that using a fourth generation language enables it to address this market segment. According to John Ray of Vocos, "Offering accounting modules developed with Powerhouse (a product of

Cognos) results in comprehensive systems that can be priced below similar packages developed using more traditional tools such as Cobol." Ray believes that Vocos' line of software products meets the needs of the CFO with a tight budget and sophisticated requirements.

Industry-Specific Packages

HOW ABOUT OFFERINGS for organizations in specific industries? Over the years, vendors have emerged that focus their research, development and sales efforts toward a market niche, such as manufacturing, distribution or the government market at various levels.

For example, software packages for nonprofits and government are available from Mitchell Humphrey, KPMG Peat Marwick, Bi-Tech and others. KPMG Peat Marwick's offering, Government Financial Systems, not only includes the usual features of accounting software but also provides capabilities such as subsidiary ledger, budgetary, appropriation, revenue, grant and cost accounting.

Manufacturing, another big market for HP accounting software, includes ASK, HP, Satcom and others.

On the other hand, Mitchell Humphrey finds that some users who have general accounting packages from industry-specific software vendors are re-evaluating their needs. Some are choosing new software that is "finance" oriented instead of industry oriented in order to gain some of the sophisticated features discussed earlier.

For example, when Bio-Rad Laboratories decided to bring in a new general ledger, the company decided to look beyond the vendor whose manufacturing software it used.

"The choice of a new general ledger was really a finance-oriented decision," according to Terry Novak of Bio-Rad. "We needed a superior report writer, since we run a lot of reports and we have a lot of organizational changes. We also needed very flexible and powerful allocation capabilities. After looking at several alternatives, we chose the general ledger from Mitchell Humphrey. And integrating the data from the

HP Deskmanager users . . .

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Workarea > list

| Item | Subject | Type | Created |
|------|----------------------|---------|----------|
| 1 | Memo to Accounting | Package | 01/27/89 |
| 2 | Letter to Sales Reps | HPSlate | 05/02/89 |

Workarea > CREATE HPSLATE
Subject: New text editor Desk

To: Mr. MIS Director

From: Secretary to the President

Ref: A better way of editing text in HP Deskmanager

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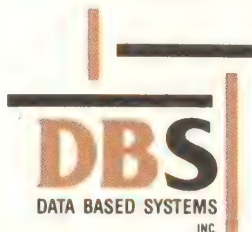
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manufacturing vendors' software products went very smoothly."

Software in most industries falls into three basic categories, according to Farsheed Ferdowsi, president of Access Data:

1. Office automation software, like word processing, electronic mail and most personal computer software.
2. Operational software, which is what an organization uses for its day-to-day operations, such as order processing for a distributor, MRP for a manufacturer, or medical billing for a clinic. Such software should be purchased from an industry specialist, if possible.
3. Financial software, which is used for meeting financial accounting and management needs. Though some industry-specific software vendors offer this kind of software, Ferdowsi says that in today's world you should not limit your search to these vendors. Instead, you should also look at other vendors' offerings to ensure you get the best operational software and the best financial software to meet all of your needs. In the past, buying packages from more than one vendor was often more trouble than it was worth. In today's accounting software environment, all financial software vendors make it easy to import files from outside sources, thus eliminating the need to rekey any data that resides on another system. This in turn eliminates the source of most of the frustrations of multivendor installations.

What is being by the vendors to prepare for the future, especially in the areas of office automation, electronic data

interchange (EDI), cooperative processing (relational databases across heterogeneous processors), the growing use of the UNIX operating system and other developing issues?

HP has provided some interesting new capabilities in linking financial applications to its office automation products. For example, you can specify an expense report within the regular month-end routines. This report, let's say, is sorted by cost center and shows expenses versus budget. When executed, each individual cost center listing is automatically separated out and sent to the responsible manager using HP Desk (an electronic mail product), with a copy to the accounting manager's electronic mailbox as well.

That is, using BRW Desklinc, when you predefine the reports you want and their level of consolidation, you also note the HP Desk mail box number. When the reports are run, they are sent to the mail box instead of to the printer. For large companies, this eliminates the chore of someone breaking apart reports, putting them in envelopes and sending them through intracompany mail. Then, using HP Desk, the cost center manager can review the expense report online or print it. In addition, an exception list of all cost centers with a variance greater than a specified percentage can be sent to the accounting manager from the same process.

Another interesting development to watch for is the emergence of PC-based graphical user interfaces for accounting data. This use of graphics to present accounting data basically fol-

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lows from the old adage "a picture is worth a thousand words." Trends and exceptions are often easier to identify when presented in graphic form instead of as a sheet of numbers. Smith, Dennis & Gaylord (SDG) has been exploring various options and has found a very positive reaction from its users. SDG is continuing its research efforts by testing several different graphical user interfaces to determine which ones provide users with the highest degree of productivity and flexibility.

Capturing Data

ALTERNATIVE MEANS OF CAPTURING data are emerging also. Collier-Jackson now has a bar code inventory capability for its fixed assets system, for example. This scanner approach greatly expedites taking inventory and tracking of assets, and significantly reduces common data entry errors like transposition and duplication.

Electronic data interchange (EDI) is basically the communication of business documents (such as purchase orders, invoices and checks) between companies by means of data communications. It is simply an alternative to using the post office for such communications.

ASK has worked with third-party suppliers to facilitate providing EDI to its customers. The company has an agreement with Birmingham Consulting Group (BCG), which has resulted in the connection of BCG's automotive release system with MANMAN (Manufacturing Management) from ASK. This enables ASK customers to send or release business documents via EDI.

HP finds that electronic payments through banks for payables and receivables in Europe is now quite common. For this

reason, HP feels that EDI for purchasing and order entry probably will emerge from vendors first in Europe, then come to the U.S..

One of MCBA's resellers recently has been working with a client in implementing EDI. According to Dick Archer of Hawthorne Computer Center, "The client, a major umbrella manufacturer, was recently informed by one of his major customers, a large retail chain, that in the near future all purchase orders would be sent via EDI, and any supplier not having EDI capabilities would be dropped. After looking at several alternatives, we recommended using a PC-based package that will collect the purchase order data and send it to the HP 3000 for batch processing in the order entry system."

The next phase is to have the supplier send invoices to the retailer via EDI. The third phase will be for the retailer to pay the supplier by means of an electronic transfer between their banks.

Access Data plans to develop an EDI interface for its Order/3000 product in 1990. Cognos also includes EDI in its plans, but no specifics are available at this time.

Many vendors are evaluating relational technology for their accounting software products for several reasons. Among these are portability to various hardware platforms, easier communication across databases and different types of computers (that is, cooperative processing), and easier ad hoc reporting capabilities.

For example, Cognos has begun a project to redevelop its product using relational database technology. The company feels that this significantly will enhance the functionality, capacity, flexibility and performance of its products and their integration with other products. The company will be using StarBase, a cooperative processing system also provided by Cognos.

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MCBA recently announced a new line of accounting software incorporating relational technology. The new product, called the Resolution Financial System, is written using the Oracle language.

"MCBA covers mid-size companies with our Classic software product line," noted George Luntz, president of MCBA. "We have LAN packages for smaller accounting and distribution companies. The Resolution System doesn't replace either of those product lines, but provides the features and functionalities to handle the financial application needs of major corporations, such as multicompany and multicurrency requirements."

Luntz noted that Resolution is oriented toward service and distribution companies, such as insurance, real estate and wholesale distributors. The first Resolution applications will run on the DEC VAX system, but the product will be moved to other platforms as the market demands it.

Mitchell Humphrey is working to incorporate relational technology into its software design using HP AllBase.

Peat Marwick's plans for its next release include moving to a relational architecture, though it's not clear whether HP AllBase or Oracle, or both, will be used.

And, of course, Oracle Financials from Oracle Corp. is written in the Oracle database management system, which is a re-

lational database product.

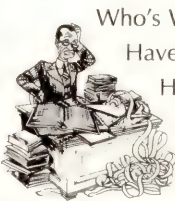
Clayton McKee of Satcom says that a keystone to meeting the needs of tomorrow's business community is "hardware-transparent software." Essentially, this means that an accountant will sit at a desk making inquiries about account activity, for example, and really not be concerned or aware of where the data resides. It could be on the accountant's PC, the minicomputer on the third floor, the mainframe in New York City, or the minicomputer in Paris!

Clearly, the 1990s are going to be exciting for users and vendors of accounting software. And as we can see, the HP user community will continue to have many options from which to choose, whatever their requirements may be. — Robert Shelley is president of Highgate Financial Systems, Emeryville, CA.

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At deadline, Cognos Inc. announced the formation of an independent company to be called Multiview Inc., which will be responsible for the development and marketing of the Multiview financial software applications. Multiview Inc. will be based out of Cognos Inc.'s corporate headquarters in Ottawa and U.S. headquarters in Boston.

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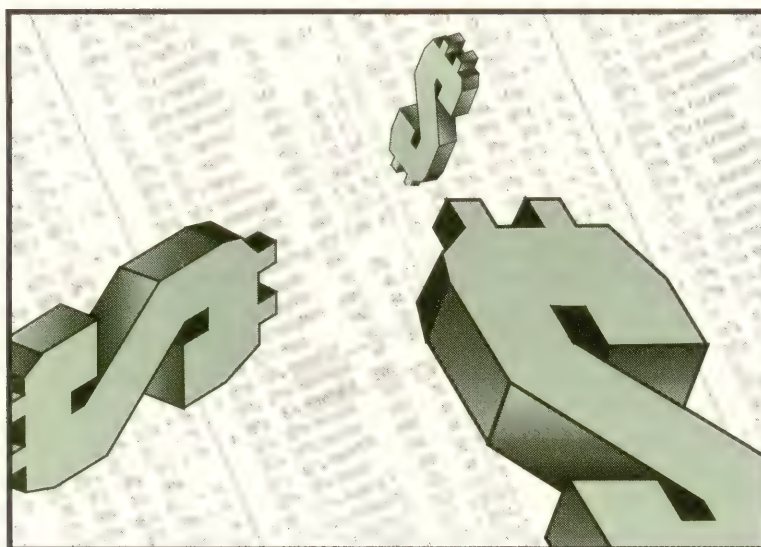
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HP ON WALL STREET

New Alliances In Standards-Based Computing

[BY PEGGY KING]

Not long ago, Wall Street regarded Hewlett-Packard as a niche vendor. HP was best known to stock brokers, analysts and traders as the company that brought them their indispensable 12-C financial calculators — and perhaps as a recommended blue chip for risk-adverse investors.

However, the Financial Services Industry Marketing Group at HP hopes to convince the industry that HP has more to offer them than calculators. Two years ago this group began to focus on developing marketing strategies and learning how to meet the needs of financial services customers.

HP has targeted investment banks, commercial banks, institutional money managers, private investment firms, brokerage houses and mar-

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ket data providers as customers very likely to want the minicomputers, servers, terminals, workstations, networking, and systems integration services that HP can offer.

HP was in existence 22 years before it was listed on the New York Stock Exchange in 1961. Why is HP looking to make deals with investment banks that arrange initial public offerings for companies that have to bring a product to market? And, because HP is a fiscally conservative company that almost always paid cash for everything up until last year's Apollo acquisition, why does HP seek to supply workstations to arbitrageurs and program traders? Finally, HP has eschewed growth at times when growth would have meant putting profits before people, why does the company target an industry that laid off thousands of employees after the stock market crash of '87 and still suffers from retrenchment?

The answer, as the saying goes, "If you see a situation you don't understand, look for the financial interest."

In 1988, the financial service industry spent an average of \$14,000 per employee on technology. Despite the fact that there has been no growth in revenues since the crash of '87, financial service companies have been increasing their technology investments.

Why HP Likes The Financial Services Industry

ACCORDING TO DON HSIEH, business development manager for HP's Financial Services Marketing Group, HP has desktop solutions for financial analysts, broker/traders, portfolio managers and back-office employees. On the multiuser level, HP can offer decentralized, company-wide access to customer portfolios, timely market data, quotes, services and back-office accounting and settlement records, and multivendor networking that links branch offices to headquarters and traders to back-office functions.

HP hopes to increase its market share in the financial services industry. Here are several reasons why banks, brokerages and private trading houses make excellent customers.

Brokerages and other investment-related businesses spend more on information services than most other businesses of a comparable size. Even a small brokerage or branch office may have two Series 800s, one for storing a database of client portfolios and another for receiving and distributing real-time

Despite the fact that there
has been no growth in
revenues since the crash of '87,
financial service companies
have been increasing their
technology investments.

market information and quotes. Brokers' desks are likely to have more than one monitor. Typically, they use or share one terminal for quotes, a PC for keeping track of clients' portfolios, and perhaps another terminal for access to other market data.

In some offices, X terminals that can display real-time quotes and have a DOS application in one window and a UNIX system application in another are replacing ASCII terminals and, in some

cases, PCs. When an X terminal replaces multiple monitors, the broker or trader has more desk space and can switch between applications without switching keyboards.

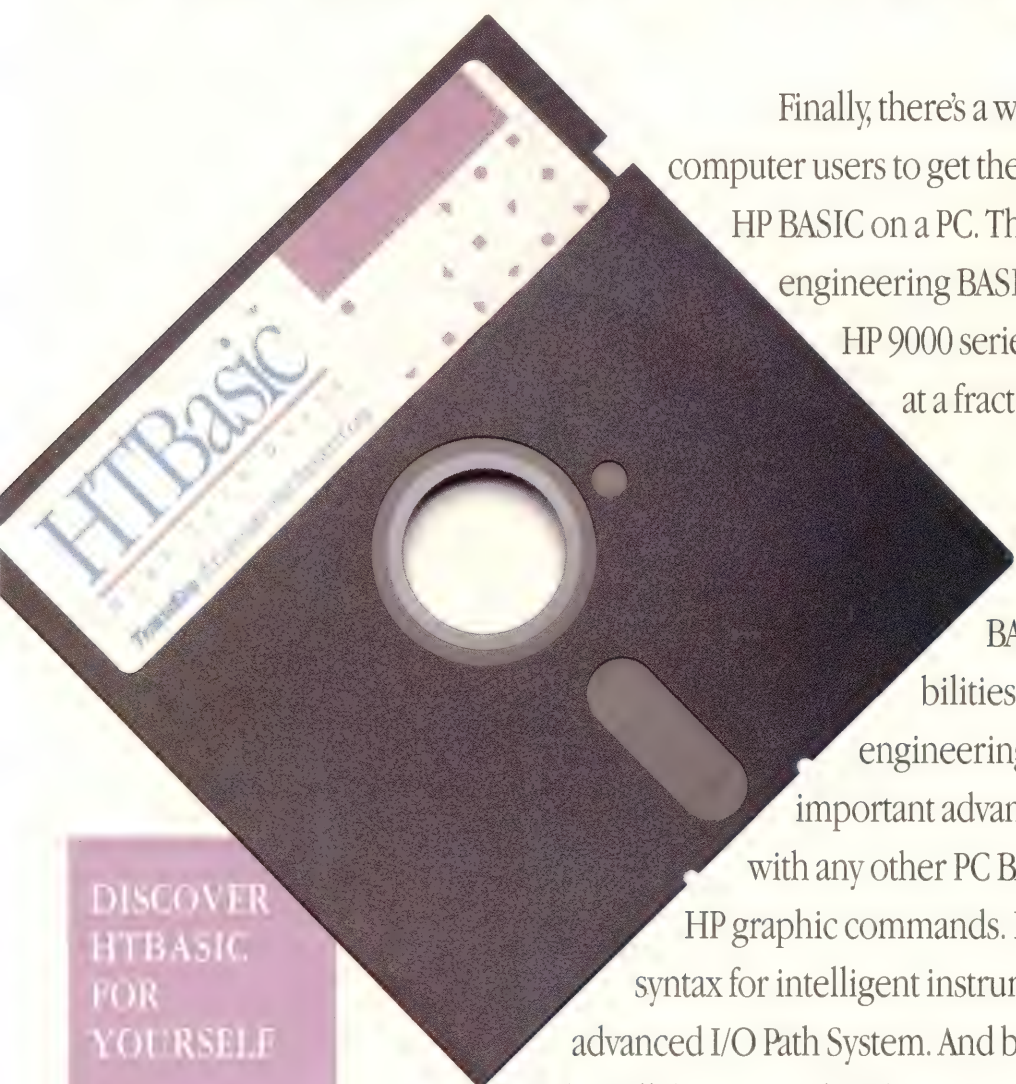
Although financial market analysts rarely get to use a DN10000 as their dedicated workstation, they often are engaged in serious number crunching that monopolizes the CPU on a token ring of workstations. Their calculations yield timely market analyses that are worth several hundred thousand dollars to the company. Therefore, the companies who hire these number crunchers will keep them supplied with the mips they need to turn out the numbers, even if it means having one multiprocessing DN10000 as a compute server for every three to five analysts.

The financial services industry usually builds redundancy into its information systems. Rather than risk downtime because a database server is offline for even a few minutes, a bank or brokerage will invest in a backup machine. For example, Nesbitt Thompson, a full-service investment firm with offices throughout Canada, has a mechanism to assure that information from regional offices gets uploaded in real-time to the centralized Oracle database residing on a Model 850 at the company's Toronto headquarters. If any of the Model 835s that hold the regional databases go down, the brokers' terminals get redirected to the central database.

To the platform vendor, redundant systems mean larger hardware deals, more complex networking and more extensive maintenance contracts.

Financial institutions, especially ones that deal in speculative investing, are likely to spend more on systems and update their systems more often than other businesses with comparable revenues and employee head counts. An HP 3000 on the factory floor or in an MIS department usually has to be stretched well beyond its capacity before a company thinks about upgrades or new machines. At brokerages and investment banks, information technology provides the competitive edge. Any investment that provides traders and analysts with more timely market information pays off in the short term.

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Finally, there's a way for serious technical computer users to get the power and features of HP BASIC on a PC. The answer is HTBasic, a real engineering BASIC that turns your PC into an HP 9000 series 200/300 BASIC workstation—at a fraction of the cost.

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Financial customers are often first in line to buy leading-edge software to enhance productivity. For instance, HP recently introduced Task Broker software that works transparently on a network to send computing tasks to idle machines. The product is currently available only for networked HP Series 300 workstations. There are Apollo-based customers in the financial services industry who are ready to get Task Broker as soon as it becomes available on their platform. These customers know that they can save money and conserve system resources by automating the task of allocating applications to idle processors — work that is now done by humans. They also await the day when Task Broker becomes part of NCS (Network Computing Services) so that tasks can be divided by subroutines rather than entire applications.

Financial Service customers bring in more revenue per service contact because the companies usually require the fastest response time and the most comprehensive services. In an industry where downtime is so costly, customers are most likely to choose 24-hour, seven day per week service and guaranteed four-hour response time — if they choose to have the vendor to maintain their systems at all. Some companies prefer not to chance even a four-hour wait for service. For example, Chicago Research and Trading (CRT), a market maker in options and futures trading, is self-maintaining. CRT's in-house maintenance staff provides 24-hour coverage and keeps the company's own spare parts repository stocked.

National and multinational financial service companies are potential customers for lucrative network management contracts. The more HP equipment that a company has at its headquarters, the more likely that customer is to have HP networking to connect the headquarters to branch offices and subsidiaries. HP makes money from the service contract while the customer saves money by not having to hire employees who have the specialized skills required to assure that the network stays up and running. The losses sustained from having a few hours of downtime on the network can outweigh any operating expenses a company can save by maintaining its own network.

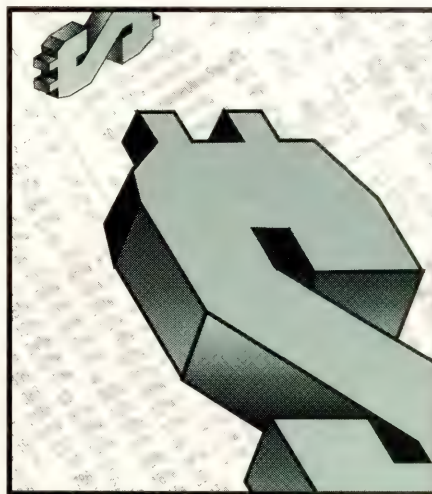
Why Financial Service Companies Like HP

IT GOES WITHOUT SAYING that the financial services industry requires reliable products and excellent customer service and that HP is widely recognized for providing customers with products that last and people who stand behind them. An investment company stands to lose many times the cost of a trading workstation if trades are delayed or market opportunities slip by because that workstation malfunctions even for a few minutes. An unreliable server or faulty network can cripple a company in this industry.

Although reliability may be HP's most important calling card on Wall Street, there are other reasons why HP is gaining

market share. One reason is that with the Apollo acquisition, HP inherited a customer base at firms such as Chicago Research and Trading, Kidder Peabody and Chase Manhattan Bank where research analysts have access to DN10000s used as compute servers. In addition, there are traders and software developers at these companies who use Apollo's DN3500 and DN4500 workstations.

On the client side of client/server computing, HP is well positioned to lure customers from Sun. Although Sun already



has attracted a large installed base of financial customers (according to Ed Zander, vice president of marketing at Sun, 20 of the 25 largest brokerages in the U.S. use Sun workstations in their trading departments), HP is the only vendor who can meet all of a large bank or

brokerage's desktop computing needs. Sun has no superworkstation. Nor does it sell powerful personal computers for account managers, back-office employees and brokers, or X terminals for employees who use both DOS and UNIX applications.

On the server side, Sun is the newcomer. Sun introduced its server line less than a year ago and the high-end SPARCserver 490 began shipping in volume this month. The SPARCserver 490 is the only one of Sun's five servers that can support more than 75 users. Three out of eight of the servers in HP's product line (including the new, low-priced Model 635SV) can support more than 75 users. HP's current top-of-the-line Model 855, is capable of supporting twice as many terminals as the SPARCserver 490. Furthermore, HP is promising to double the performance of the high-end 855 sometime this year when it brings out systems based upon a new, more powerful HP-PA microprocessor.

HP is beginning to sell HP 9000 Series 800 minicomputers for back-office accounting and other transaction processing. Although IBM and plug-compatible mainframes are still the de facto standard for back offices, smaller companies that used to send their data to be processed at service bureaus now are doing more back-office accounting at their premises. They are turning to minicomputers, but they don't want to be locked into any vendor's proprietary operating system, especially now that UNIX systems are usually more competitively priced than proprietary operating systems such as MPE/XL. UNIX is the new standard for the smaller office, and Series 800 provides a scal-

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able line of applications servers ranging from the Model 808 for eight users to the Model 855S that can support up to 200 active users and has ports for up to 400 terminals.

Aside from reliability and a full line of scalable machines, there are other reasons why financial service customers are switching to HP machines when they update their information systems.

Front office employees in the financial service industry, (brokers, traders, account managers and support staff) use both PC and UNIX-based applications, and HP has been a leader in integrating the two platforms.

Traders and software developers in the industry use UNIX, but brokers, portfolio managers, and clerical workers are more likely to have DOS-based applications. Now that applications are distributed over a network, software such as HP's LAN Manager makes it possible for a PC user to access a UNIX application (or vice versa for a workstation user) without needing to know anything about the operating system being used.

Batterymarch, a Boston-based investment management firm, chose HP because it provided the best solution for integrating DOS and UNIX. Programmers use Series 300 workstations running X Windows for developing the company's Batterymarch Investment System (BIS). Portfolio managers at Batterymarch need UNIX to access BIS and real-time quotes, but they also need DOS for their spreadsheets. HP's AXDS/PC provides X Window System support for Vectras and other PCs. The company also runs DOS and UNIX concurrently on its recently purchased X terminals.

Most financial service industries have hardware from more than one vendor and therefore require multivendor connectivity. Most of the more than 300 networking products that HP sells are for multivendor networking. It is especially important to financial service customers that HP is an industry leader in providing IBM networking products for linking smaller systems to IBM or IBM-compatible mainframes.

Financial service industries operate in the global marketplace and require a vendor with a worldwide presence. Because Batterymarch has a global presence, it sought a vendor who could provide consistent and readily available local support for their systems, especially in the Far East. Other financial service companies need a vendor who has sales offices in every Western European country. HP has employees who can provide support services and training in the local language in every country that has a stock exchange.

Investment firms and private trading companies that do their

Traders and software
developers use UNIX, but
brokers, portfolio managers,
and clerical workers are
more likely to have
DOS-based applications.

own software development need a vendor who can provide networked workstations for programmers and an integrated software development environment. Whether they provide proprietary software for in-house use or applications that will also be sold to other companies in the industry, financial service customers expect their platform vendor to provide a powerful development workstation with sufficient graphics capabilities to support CASE tools.

At Chicago Research and Trading, more than 60 software developers have Motorola-based Apollo workstations at their desk. They use DSEE, the Apollo division's configuration management tool for managing multiplatform development projects, and Software through Pictures from IDE (Interactive Development Environments, San Francisco, CA) for rapid prototyping of their applications. Software developers at Batterymarch use Model 370 workstations running X Windows for developing their X Windows-based BIS application. They expect the application to run faster when they get a board upgrade from the 25-MHz Model 370 to the 50-MHz Model 375. Software developers at Nesbitt-Thompson use a Model 825 to develop applications for the decentralized Retail Information System (RIS) that resides on a Model 850 in Toronto and on Model 835s in regional offices across Canada.

Financial service customers often choose their platform vendor based on which industry-specific software applications, databases, and software development tools are available on it. Lately, HP has been attracting companies that write software and do systems integration for the financial service industry. Because most financial applications are developed on top of a relational database from a third-party supplier, the software vendors must choose the platform vendors that can run on the RDBMS they use. Informix, Ingres, Interbase, Oracle, Progress, Sybase and Unify are all available on HP Series 800 servers.

Of these, Interbase and Oracle have also ported to the DN10000. Nesbitt-Thompson selected Oracle, and CRT uses Interbase for their proprietary database applications. Focus from Information Builders Inc. (New York, NY) runs on the Apollo platform and will be available on HP's UNIX operating systems by next month.

Digital Solutions Inc. (DSI, Bloomington, MN) has recently ported InTrader, a real-time securities trading system, to the Series 800. InTrader is built on top of a Progress relational database. DSI developers also used the Progress 4GL.

Management Software Company (New York, NY) is in the process of porting BEAMS, a real-time portfolio management

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system, from a TurboIMAGE database on a Model 950 running MPE/XL to the Series 800 where it runs on Sybase with a multi-server license. BEA switched from the proprietary system in response to the industry's requirements for open systems and in order to serve more users. The Model 950 does not perform fast enough when there are more than 70 users on the system. BEA selected Sybase for its speedy performance and for its real-time capabilities.

Financial Database Systems (FDS, San Diego, CA) wrote CAESAR on an Informix database because that was the only UNIX-based relational databases available when the company developed its back-office accounting system, but they also liked the fact that the database has already been ported to UNIX servers from many vendors and that Informix has a 4GL.

A Glance At Future Configurations

AS THE CLIENT/SERVER MODEL of computing gains momentum, expect to see financial industries move from batch processing to real-time systems, from proprietary mainframes and minicomputers (either at headquarters or at service bureaus) to UNIX servers, from ASCII terminals

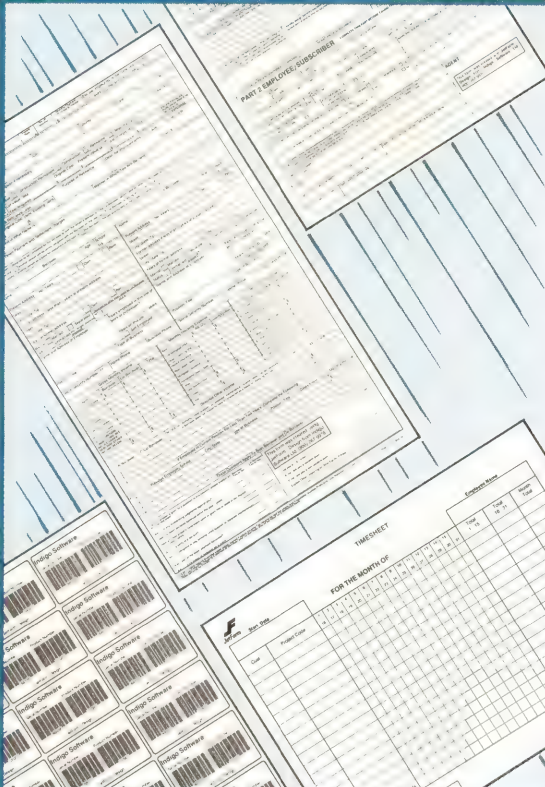
to X terminals, and from stand-alone trading workstations to increasingly powerful graphics workstations connected to compute servers via NCS (Network Computing Services).

Richard Kohout, director of technology at DSI, envisions a client/server configuration for Intrader.

The front office software would run on rings of trading workstations after they are connected to a DN10000, where the X window protocol would reside. The back office would be connected to the front office token ring via Ethernet. The compute servers that run the applications software and use the X window protocol to display information on PCs would also be connected to a database server such as an HP Model 635SV.

Bob Hertz, president of financial database systems, has a vision of client/server computing that includes X terminals. His company is expanding its CAESAR back-office accounting system to provide a complete client/server configuration for customers who want to integrate the back office with the front office and quotes services.

At headquarters, a large, RISC-based multiuser system (Model 835 and up) would be the centralized quote server, collecting real-time data via Ethernet and distributing the quotes to client X terminals. The CAESAR database would reside on another multiuser system (also a Model 835 or up) and be accessible to




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on top of UNIX mail.

Branch offices would be connected to headquarters via X.25 networking. At each branch office a smaller server (Model 825 or 815) would be connected to PCs with AXDS/PC software. Account representatives would use their PCs running X Windows to communicate with headquarters. Quotes can reach the branch office via satellite because this method is less expensive than communicating with headquarters via the phone lines.

New configurations for InTrader, CAESAR and other client/server-based applications give HP an edge in the race to become the vendor of choice for distributed computing environments in the investments business. HP, along with the VABS and systems integrators who have formed alliances with the company, can offer brokerages and investment banks complete solutions — hardware, software, networking and extensive customer support.

X terminals via Ethernet. A Model 825, also connected to the network, would be a server for a UNIX word processor, a UNIX spreadsheet, and an enhanced electronic mail program that runs

networking and extensive customer support.

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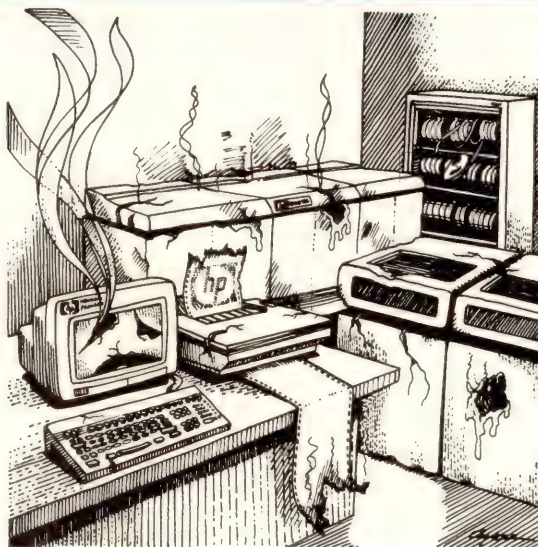
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T ECHNICAL DATA MANAGEMENT

Meeting The Real Needs Of Scientists And Engineers

Relational database management systems (RDBMS) typically are designed to meet the needs of business or commercial users. However, these products do not meet the unique requirements of technical users, such as scientists and engineers who are involved in the management and analysis of experiments and tests.

In engineering environments, the most useful type of database management system is one that fulfills the special needs of technical users. Some of these requirements are data collection and storage (getting the data into the database), data query and analysis, graphical reporting, a query interpreter, a two-process database architecture, support for discless clusters and distributed processing, programmability and convenient access to UNIX system tool sets.

Data Collection And Storage: Commercial databases are geared to low-resolution financial data types that are entered manually into the database. On the other hand, technical data types differ in that they involve storage of large arrays of high-precision real and complex values gathered from instrumentation. Because commercial RDBMSs aren't designed for these data types, transferring data into the database is no small challenge. In order to use a commercial database, technical users often must write data collection software in a programming language and operating system that is different than that of the database. This means that data must be collected and stored in temporary files in one environment and then switched to a new operating system in order to run the database program for data import.

The RDBMS should support the programs that are used to collect the data so that results of experiments may be stored directly into the database. The RDBMS should easily handle sci-

entific data types and should operate on the same computer used to collect the data, thereby eliminating costly transfer of data between platforms and additional user training.

Data Query And Analysis: Most commercial databases include a structured query language (SQL) interface for data manipulation. While this language supports the relational algebra commands used in technical applications, it's massive in size, difficult to learn and doesn't offer the numerical analysis commands required by technical users. The absence of these commands forces the technical user to perform ad hoc analysis by using query commands to extract all data from the database and then employing a separate program for analysis. What a technical user needs is a technical query language that provides a simple set of relational commands for manipulation of technical data types, and one that supports numerical analysis embedded in the query. The technical query language should be easy to use yet capable of handling complex statistical analysis of precision real data, array manipulation, Fast Fourier Transforms (FFT) etc.

Graphical Reporting: Typically, commercial database products either support business graphics such as pie charts, bar charts, etc., or they simply don't offer graphical reporting. An engineer needs to view and report data in a variety of technical report formats including 2-D or 3-D line charts, histograms, map graphics, polar charts, etc. For example, an engineer who is collecting measurement data from a semiconductor wafer may need to view the data in a Wafer Map or Schmoo Plot format. With a commercial database, the same user must export the data to external flat files and then ac-



RDBMS

Jim Jenkins



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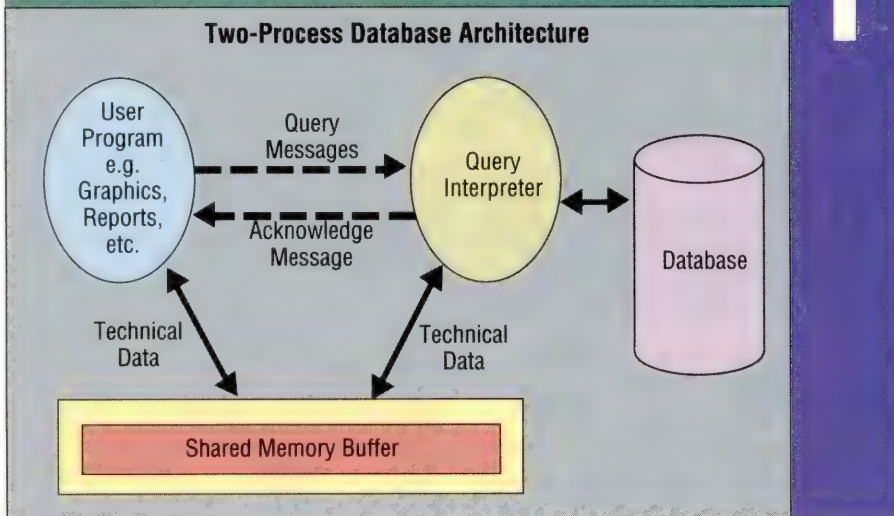
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FIGURE



Writing to a database through a two-process database architecture.

cess the files through a separate technical graphics program.

The RDBMS that's most useful for representing scientific and engineering data is the one that can summarize data into a clear, concise report through flexible scientific formats that include both tabular and graphical data presentation.

Query Interpreter And Two-Process Database Architecture: An integrated data management system that's designed for technical environments should have a two-process database architecture so that a query interpreter can manage all access to the database through parsing and executing commands. Commercial databases don't need a query interpreter because the data types used for accounting and other commercial applications are standardized across industries. Scientific and engineering applications typically use non-standard data types from numerical functions. If the RDBMS has a command interpreter, the user doesn't need to leave the application program to process data that is originally expressed, for example, in sines or cosines.

A technical database can be tightly coupled with various user programs such as a graphics program, a document processor, and an import/export program that connects data from remote computers,

instruments or file sources in a variety of formats. The programs that are integrated with a technical database use a technical query language and the message-passing facilities of HP-UX to pass messages or commands from the integrated application to the query interpreter. These messages are placed in a queue that's read by

the interpreter.

After parsing the message, the interpreter executes the command. The data is placed in a special buffer area of shared memory. The component program is then sent a message that the query is complete and the buffer has been filled. The program now can access the data from the buffer without making any additional demands on the query interpreter or the file system (Figure 1).

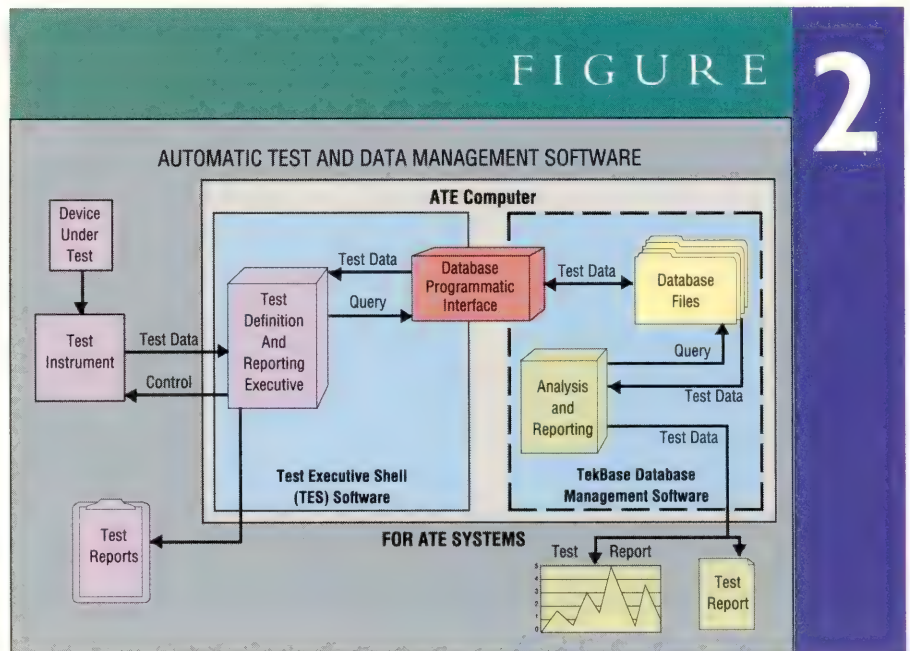
A similar process is used when an application program writes to a database. The program fills the special shared memory buffer and then sends a message to the query interpreter. When this message is received, the interpreter transfers the data to the database.

Concurrency Control: In a multiuser environment, many query interpreter processes can run at the same time. For example, one user may be importing or exporting data while another user is using an integrated graphics application. Both are able to access the same database.

In this type of environment, concurrency control is critical to maintaining data integrity. The technical RDBMS's architecture eliminates the danger of the database being damaged because of hard-

FIGURE

2



Programmatic interface allows capture of data in one operating environment and analysis in another.

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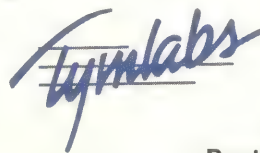
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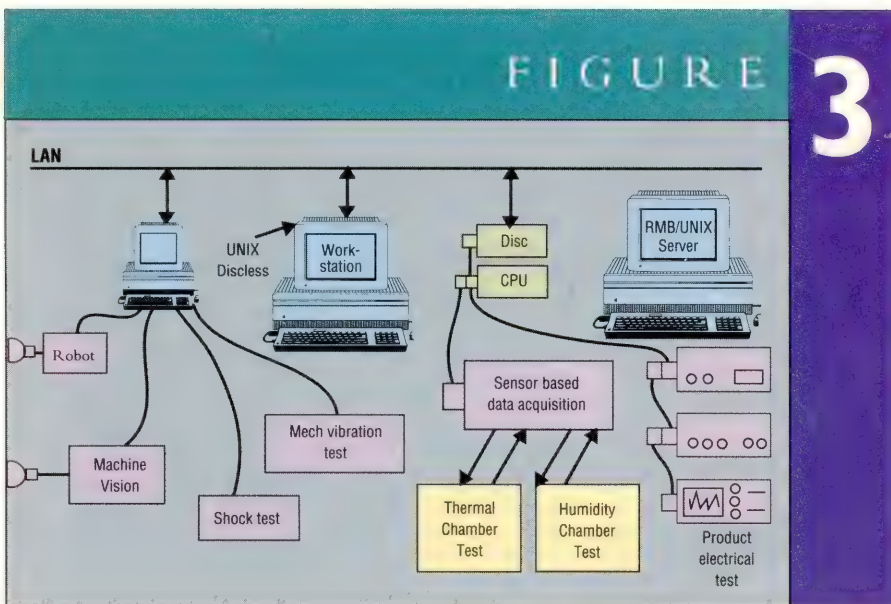
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A typical UNIX configuration for production test.

ware failures and allows users to read, write, create, and remove database files in a "controlled" system environment. (The query interpreter, which runs as a separate process, has exclusive permission to access database files directly.)

Support For Technical Programming Languages And Programmatic Interfaces:

In most commercial applications, COBOL is the most important language or perhaps the only language that the RDBMS needs to support. But, if you're a technical user, you also may need BASIC and PASCAL to communicate with instruments. Therefore, you should choose an RDBMS that supports the languages you use in applications.

A technical RDBMS also should provide a programmatic interface that functions in a variety of host languages — C, PASCAL, FORTRAN and BASIC — and provides the means to add database access code to applications written in these languages (Figure 2). If you've spent hundreds of hours developing code for your computer-based system, you want to have a programmatic interface to link your code to the database.

Support For Diskless Cluster Environments And Distributed Processing:

single-processor UNIX configuration supporting many terminals or graphics workstations, CPU resources are often inadequate. Individual processors communicate over a LAN but may still need to access a common database. A technical RDBMS should be equipped for this type of environment. It should be possible for applications to run on any node while the database is located at a particular node. Query commands and retrieved data are passed along the network using the Berkeley sockets.

The process works equally well in a discless cluster environment or where each node has its own local system (Figure 3). A typically supported configuration is composed of several technical workstations that are collecting instrument or test data and are connected across an Ethernet local area network (LAN). As data is collected, the results are sorted in a central database. Under this type of configuration, data can be simultaneously accessed by any number of terminals connected to the server.

Access To UNIX Tool Sets: A technical RDBMS running on HP-UX on an HP 9000 can use available UNIX tools including programming languages, communications software and networking facilities. The HP-UX toolset provides a number of features that you can use in

technical applications. For example, when a program such as a report writer needs to access a database, the UNIX kernel can create a new process to run the query interpreter.

In HP-UX, you can also communicate with the shell while in the interactive query component program. The query interpreter looks for the "!" character in query commands and creates a subshell where you then can execute the shell commands.

Programmability: User-defined functions (programmability) and programmatic interfaces extend the RDBMS's technical capabilities. A technical user should be able to add a user-defined function by writing a procedure that will implement the desired algorithm. Through the RDBMS's utility program, the required interface code links the query interpreter to the function. Once the new function is added to the function library, it can be called as though it were built into the system.

Benefits Of An Integrated Technical

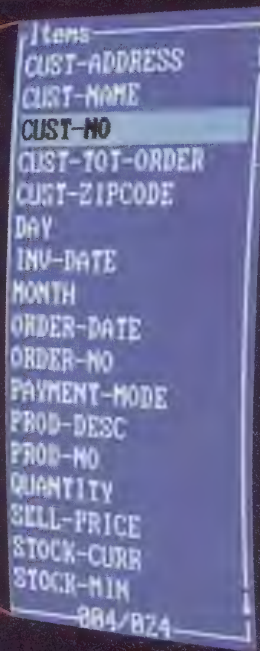
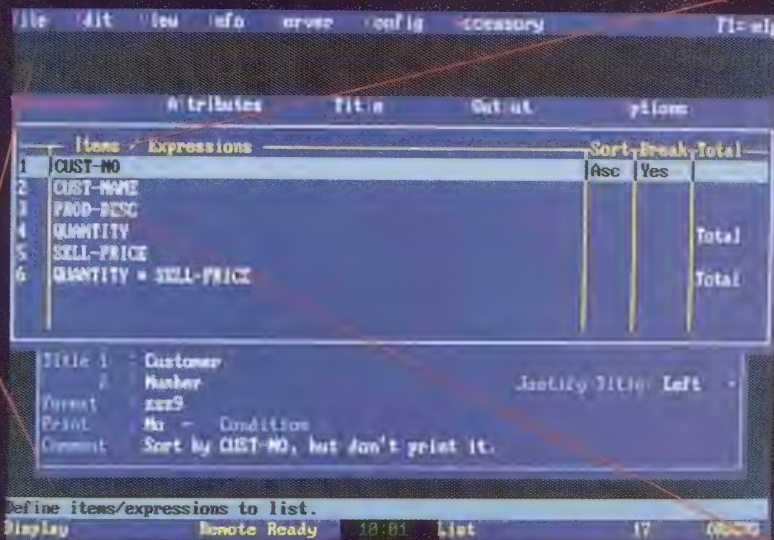
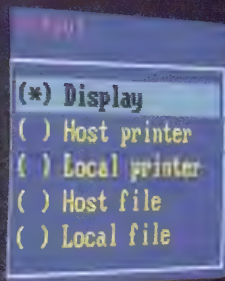
Data Management System: An integrated technical data management system provides the tools scientists and engineers need for efficient data management and analysis. These tools include query functions, data communications features, array handling, user-defined/specialty function libraries, and graphics.

If an RDBMS has all or most of these features, it's designed specifically for data management and analysis in technical environments. This type of database can be used as a general-purpose tool for engineers and scientists because it supports a range of requirements from storing instrument data to designing, managing, and analyzing data for production test or R&D laboratory experiments.

—Jim Jenkins is president of Symmetrix Software Inc. (formerly Test Quality Company), Santa Clara, CA. Symmetrix distributes TekBase, a technical data management system for Protek, U.K.

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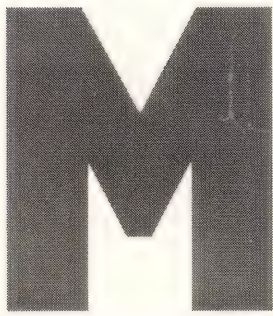
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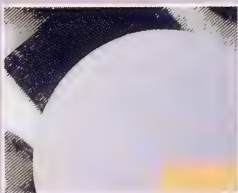
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HP Streamlines And Enhances Support Services To Include Novell And 3Com LANs



SUPPORT

Ron Levine

MULTINETWORK SUPPORT

With hardware and systems sales slack throughout the midrange computing industry, manufacturers are increasingly targeting service and support as a means for gaining new revenues. HP, IBM and DEC are well aware of the inroads made by the third-party maintenance (TPM) companies in the lucrative service area. The TPMs have captured an increasing percentage of the multibillion dollar service niche. The big guys (i.e., the OEMs) are now determined to stop further inroads into their once exclusive domains and to recapture lost service accounts.

To accomplish this they have implemented programs to challenge two of the most commonly heard arguments for using a third-party maintenance provider.

- That it's easier to do business with a TPM because of the flexibility of their service/support offerings.
- That the TPM will service the complete computing environment regardless of vendor brand name.

HP, IBM and DEC's answer has been to overhaul all their system service/support agreements to be more flexible in meeting end-user needs and have offered, in varying degrees, multivendor service programs and options. While DEC and IBM offer mixed-vendor servicing at their sites only, HP has gone one step further. At the low end, HP supports any Novell or 3Com PC-LAN with all associated computers and peripherals on HP and non-HP sites alike.

HP's newest service and support offerings, SuccessLine Service, HP PC-LAN Support and CableSite Service, are aimed at meeting user needs and establishing HP as the single point of contact for maintenance services, regardless of equipment type or brand.

SuccessLine Service is HP's new revamped and simplified hardware field service program (a-available as of January 1 in the U.S., March 1

in Europe and the Far East). This four-option package covers all onsite hardware services for workstations, PCs and systems. Service no longer is based on product type but on the user's critical needs. It eliminates the complex array of product-oriented service and support offerings (that caused confusion among some customers) and replaces it with one comprehensive, easy-to-understand hardware service/support program that covers all equipment.

The four options available with SuccessLine Service* are:

- **Priority Plus Support** — 24-hour, seven days per week, 365 days per year coverage. Maximum response time is within four hours.
- **Priority Support** — Same day service Monday through Friday, 8 a.m. to 9 p.m., with four-hour response time.
- **Next Day Support** — Monday through Friday, 8 a.m. to 5 p.m. Response to service request is during the following business day.
- **Scheduled Support** — One day per week an HP engineer provides onsite service. Site visits are scheduled Monday thru Friday, 8 a.m. to 5 p.m.

The SuccessLine Service program aims to make it easier to understand HP service options and easier to do business with HP while enhancing the services available, according to Brenda Vathauer, product manager for the Product Support Division. Some key features that were previously available only to HP 3000 product line users now are standard for all HP service/support customers. "Our focus will continue to be on improving the ease of doing business with HP in the support arena," says Vathauer.

Some Key Features Of SuccessLine Service

Several new service features and enhancements are included in the SuccessLine Service program.

■ HP will provide the best possible response across all service levels. Even though four-hour or next-day response times are specified in the service option, HP will respond as quickly as possible to all service calls. Many times an HP engineer is on site within one or two hours.

■ 24-hour, seven-day coverage is offered as a standard service choice. There is a 10 to 15 percent price reduction (in the U.S.) for this service over previous pricing.

■ Work-to-completion feature — an HP engineer remains onsite until all contracted services are performed and all problems are resolved. This feature, previously available only to HP 3000 product line customers, now is standard for all products.

■ Extended coverage hours for workstation and office products have been realized as a result of the standardization of service offerings.

■ In the U.S. and in most other countries, service call travel charges have been eliminated for customers within a 200-mile radius of an HP support office (previous service contracts provided for travel fees if customer location exceeded 100 miles from an HP support facility).

■ All accounts have an assigned representative for point of contact within HP. The account representative knows the customer and the contract specifics and can get the answers to all customer questions pertaining to that site. The account-assigned representative may be the site CE or another person. This service was previously available only to HP 3000 product line users.

■ For contract customers there's a special SuccessLine Service Rate program that covers per incident or per hour charges for services not normally covered as part of the support contract (e.g., equipment moves). On all covered equipment, the rate charged for non-contract services will be lower than the standard Time and Materials rate.

■ Simpler service choices based on the nature of your applications and operating environment needs, not on the type of product you have installed.

As HP customer contracts come up for

renewal, they will be rolled over to the SuccessLine Service agreements. In the U.S., all customers are receiving the new service benefits even if their contracts have not yet come up for renewal, according to Vathauer.

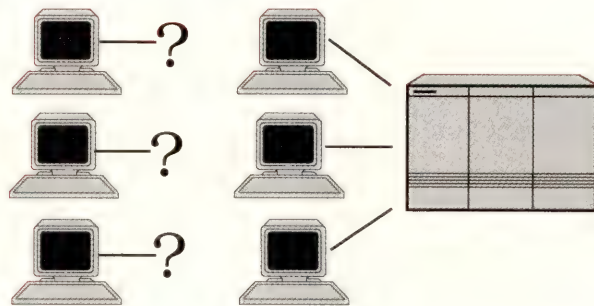
In addition to the new SuccessLine Service, customers still can apply for

Return-to-HP-Service for low-end products and customized service offerings to meet special needs.

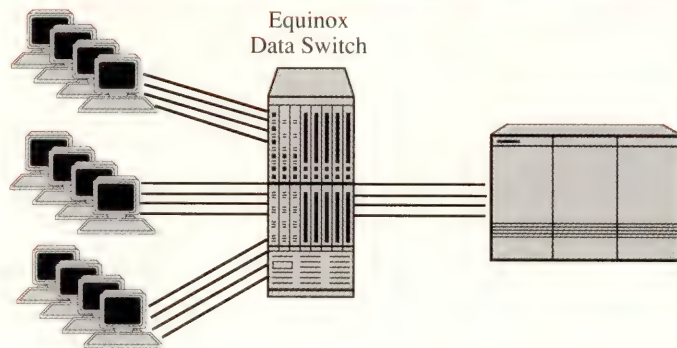
PC-LAN Support Added To Multivendor Service

HP PC-LAN Support is the latest addition to the company's multivendor serv-

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icing program. Announced last October in the U.S. and expected to be available on a world-wide basis by mid-1990, this program provides worldwide service and a single point of contact for hardware and software support of 3Com, Novell and HP local area networks, and all attached personal computers and peripherals.

With worldwide LAN revenues projected to reach \$7.5 billion this year, and 50 percent of installed PCs expected to be connected in networks over the next two years, the LAN services business is definitely a high-growth area. HP feels its experience and reputation as a high-quality servicer positions it favorably in this support segment. HP claims to be the only company that provides authorized support nationally for both 3Com and Novell LANs.

HP PC-LAN Support provides problem isolation and resolution for any device attached to the LAN. Customers work with HP's network of response centers to resolve most problems remotely. An HP response-center engineer uses various remote access tools to identify network faults and handle problems over the phone. If a problem can't be handled remotely, a support engineer is dispatched to arrive at the site within four hours.

According to Taia Ergueta, product marketing manager for Multivendor Support, customer LAN support needs usually fall into the following two segments:

Small PC LANs — require network planning, cabling, installation and implementation. They also require multivendor, PC-based integrated hardware and software support.

Complex/Interconnected LANs — require multivendor hardware and software support across a variety of technologies and systems. They also need consistent, specified services available from a single source.

HP intends to be that single source. They may provide all support themselves or call on other OEMs and partners when needed, but the customer never has to call anyone other than HP for any rea-

son. And this is true even on non-HP system sites.

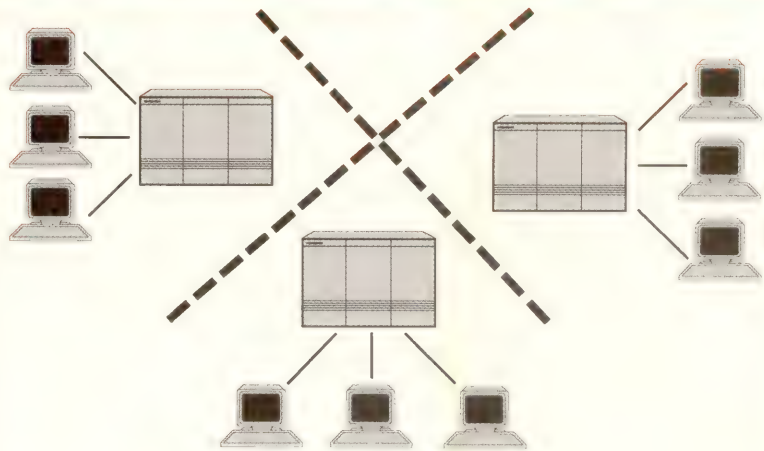
Some Key Features

- Total support for 3Com and Novell LANs. HP is an authorized service provider for these vendors.
- One phone call for all network and as-

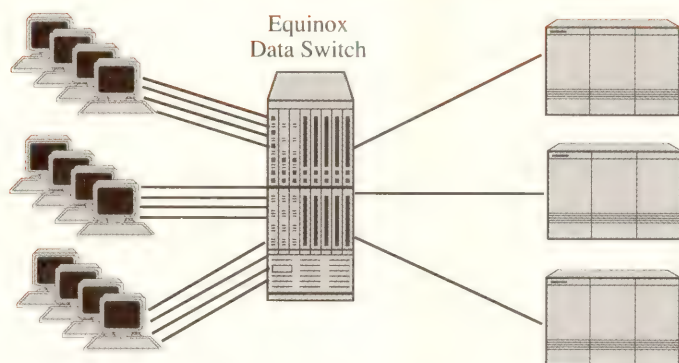
sociated equipment problem resolutions.

- Remote support from an HP Response Center. HP installs a modem and diagnostic software on the customer's network making it possible for Response Center engineers to access the network and diagnose problems over the phone and resolve them remotely, when possible.

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■ Onsite Assistance — when network problems can't be solved remotely, HP dispatches a support engineer to arrive at the customer site within four hours.

■ Multivendor problem resolution. All computers and peripherals attached to a 3Com, Novell, or HP LAN are supported.

"Users often start simple and usually wind up with a complex LAN or LANs," explains Ergueta. When they need help they expect the same level of service on LANs as on big systems, but that service is not in place; HP however, can provide it. System fixing, not box fixing, is needed in LAN support.

CableSite Support

Another addition to HP's Multivendor Support package is its CableSite Support service. Now available in the U.S. and Canada, it provides HP customers with a single vendor responsibility across the plan/implement/operate phases of a LAN cabling task. Hewlett-Packard handles the design and installation of the cabling infrastructure needed for information transport over LANs and ensures cabling reliability.

The LAN design is tailored to individual network and site requirements. Cable laying, verification and documentation are all provided as part of the CableSite service. HP assumes full responsibility for the quality of the wiring. CableSite is not part of the PC-LAN Support option, but is part of HP's total LAN Support Package.

By providing multiple site coordination and single point of responsibility across the design, installation, and implementation phases of network projects, HP is reducing the customers risk with his LAN investment. After all, the wiring is the backbone of the network. Proper design and installation pay off in uptime over the life of the network.

With corporate installation of multivendor networks taking place at a rapid pace, HP is going all out to service non-HP products as well as its own in order to hold onto its customer service base and maintain or extend its marketshare.

Through its SuccessLine support, PC-LAN Support, CableSite Service and its existing Multivendor Support offerings,

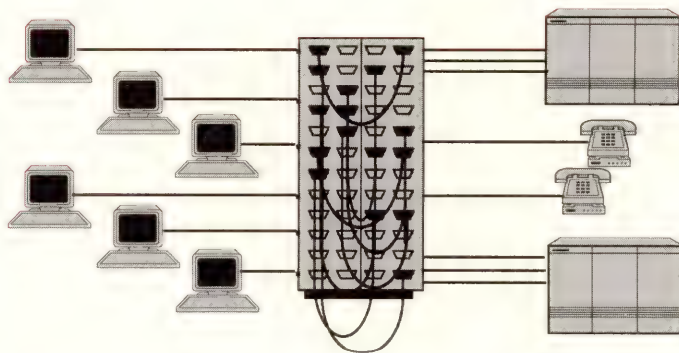
HP is providing the type, quality and variety of field support services necessary to attract those dollars. As the manufacturer of the midrange computer anchoring many systems and other system and network components, Hewlett-Packard service is a viable alternative to TPM vendors and another available option for

the service purchaser.

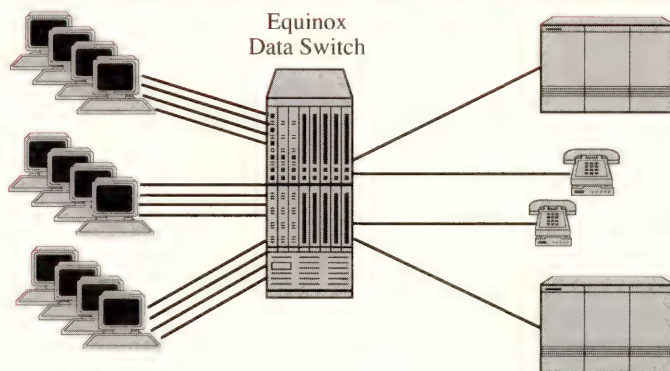
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****All coverage options pertain to the U.S.**
Some foreign countries have modifications to the SuccessLine Service program because of local business practices and local laws.

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How To Get The Most Out Of HP-PCL

ROUND SERVICES FOR THE 'JETS'

I love my jets! The DeskJet and LaserJet II, that is. I keep finding new tasks that exploit the phenomenal print quality. So do my associates.

However, the trouble is that our needs range from landscape to compressed, small, proportional, camera-ready copy. We haven't standardized on a single word processor, though most PC-based programs on the market do have decent support for Hewlett-Packard Printer Command Language (HP-PCL). But decent doesn't always mean up-to-date. Although it's increasingly common to find support for Think, Quiet and LaserJets, exact font recognition for the DeskJet in particular has been a bit slow in coming from the software community.

HP printer drivers and program support may not be in perfect harmony. I found this when upgrading from PFS:Write V2.01 to V2.1. I think word processing software hasn't kept pace with all the goodies that HP-PCL has to offer. Although many standard features such as bold-face, underline and italics usually are done right, the trouble areas tend to be with providing a consistent setup for the printer. I've been frustrated to find that in spite of a manual setup from the jet control panel, the driver program tends to have a mind of its own when the job actually runs.

To help meet the needs of everyone using my HP printers, I wrote a family of setup utilities to handle every aspect of printer configuration for a variety of print jobs. There's one nagging problem with HP-PCL, and it's unavoidable: There's no escape in your average word processor. While HP-PCL sequences are written using ordinary ASCII characters, they all begin with character 27 (escape). Most likely, your word processor recognizes this as a command rather than a character to embed in a file. There are a number of tricks to overcome this. The solution I picked was a family of simple-

to-modify assembler programs. But before we launch into that, let's get a better idea of what HP-PCL is all about.

Understanding HP-PCL

HP-PCL is an obvious improvement over the diverse range of antique printer protocols that still dominate most of the microcomputer world. Because it's much newer, HP seized a golden opportunity to set a standard that was at once flexible and extendable. And they did it right! Well-considered design decisions set HP-PCL apart from earlier popular command sets such as Epson, Diablo and IBM Proprinter language.

Topping the list is an obvious innovation. All escape control codes use ordinary text characters. EPSON and Proprinter codes frequently require the insertion of control characters to signify common values. Setting a top margin of six, for instance, requires inserting a Ctrl (-) F (char # 6) in the setup string. This has two problems. First, it isn't much easier to create control characters in text. Worse still is the documentation.

If you haven't memorized the display table for control characters, you won't be able to quickly tell just what you included when you view what you wrote later on. The HP route is much simpler, although it results in longer code sequences. If you want six lines, the PCL command includes a 6 in plain text. All of HP-PCL works this way. Because HP printers have a serious microprocessor of their own anyway, it's a small matter to include parsing routines in the command language. This is the thoughtful way of making the printer work so you don't have to. It's the labor saving definition.

The expanded scope of the command set covers the bulk of the remaining improvements. Software selectable end-of-line sequence in HP-PCL replaces dip switches in the EPSON, for



UTILITIES

Don Person

instance. Every other feature, short of setting the paper guides, can be done via software. The only imperfection I've really noticed is the omission of proportional space tables for Helvetica and Times Roman fonts. You can get them from HP Support on disc, but the format isn't particularly useful. On balance, this only is likely to matter if you're writing publication-quality print drivers, but then that was my situation.

This isn't to say that HP Printer Command Language is without its own idiosyncrasies. Most of the peculiar stuff comes in the form of commands that interact with or modify other commands already stored. Some of this is unavoidable, and most of it I found by trial and error, mixing commands in different orders. My homebrew setup utility expresses what I've learned so far about the business of mixing and matching command sequences. Program 1 includes MASM-compatible assembly language to

create an MS-DOS program for any version of DOS, 2.0 or beyond. You can add your own personal setup preferences and roll your own using this code as a template.

SETJET.ASM - A setup utility to pre-set conditions for specific jobs with or without word processor cooperation.

I suggest setting up the printer like this: Set SETJET.ASM for the actual codes.

The escape character is represented in the following text as {Esc}. ## is used to signify a numeric sequence that you specify to set the code. For example, {Esc}&l88P in template form is shown as {Esc}&l##P.

Always reset the printer with {Esc}-E before setting new values from scratch. Make sure to:

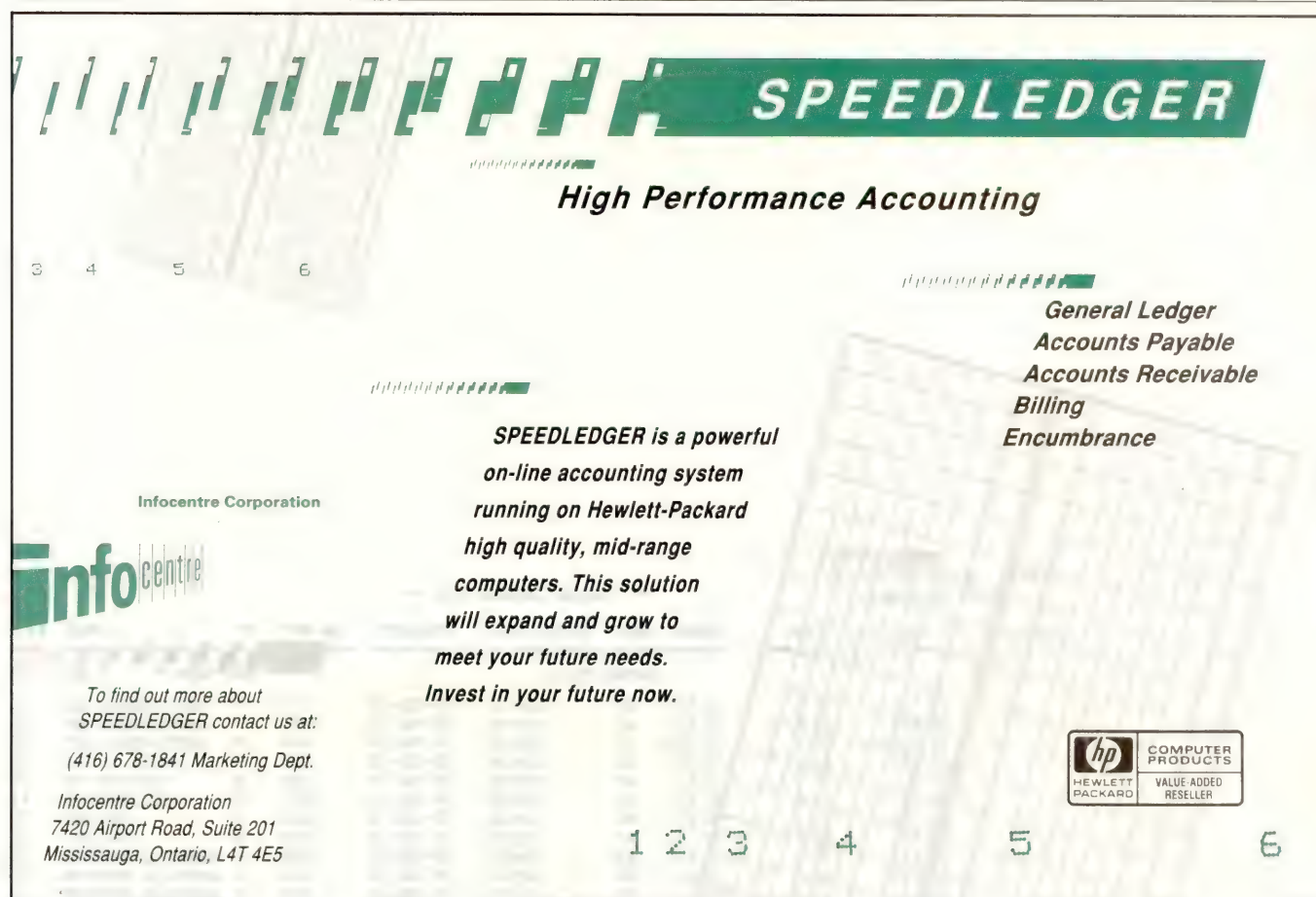
1. Decide on the basic font and character size (vertical size). Set this in points (there are 72 points per inch). In actual printing parlance, type size is specified in

either points or picas. Pica is the older scheme and less descriptive. I think in points nowadays. Program 1 initially sets a default stroke weight, too.

2. Set the pitch. This is the number of characters per inch to output at the current character size. It specifies the horizontal space that a character will occupy when proportional spacing isn't used.

These first two values affect each other because most fonts don't have proportional spacing and actually work with only certain preset ratios of point size and pitch. Tables found in Section 7 of the DeskJet manual show legal values. Don't be surprised at the results if you don't follow these guidelines.

3. Set line spacing. This can be done in two ways. I prefer to specify the line spacing in lines per inch (lpi). The default is 6. Larger values reduce the white space, or leading, between lines. You have quite a bit of leeway here, but ex-



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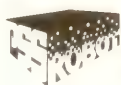
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JETSET.DOC

Program I.

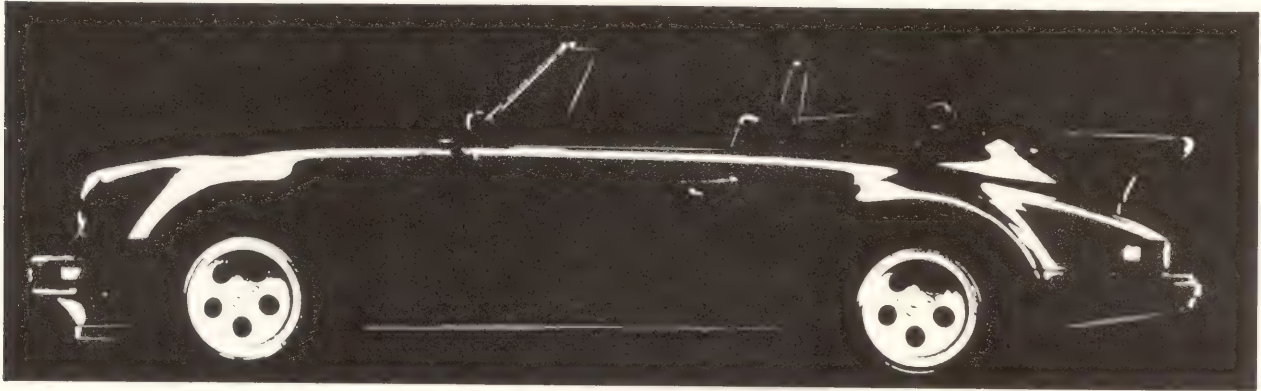
```

: Setup The DESKJET on the port of your choice
: example: SETJET      ( uses the default port PRN )
:              SETJET lpt2  ( uses the printer on second channel )
: NO option causes DOS to send the setup the the default printer
:              wherever DOS has detected one.
: To create a custom copy, place your codes between the labels
: yourdata: and dtatail:
:
: MASM setjet.asm
: LINK setjet.obj
: EXE2BIN setjet.exe,setjet.com
: DEL setjet.exe
: LINK will show a NO STACK warning. This is OK.
: SETJET.COM is the executable memory image program.
:
: "setjet.asm" is your copy of this source listing
:
: Possible error numbers are:
:
: 2 = File not found - you gave an invalid option
: 3 = You tried to send the setup via an invalid path
: 4 = No handles available you need a bigger number in
:    the FILES= statement in CONFIG.SYS
: 5 = Access denied. Could happen in a peer network with a shared
:    printer at your station.
:
: DEP 8/89
:
code          segment
              assume cs:code,ds:code
              org 100h                ; will be a COM when done
start:        jmp starter              ; where code starts
:          ** required program data area **
:
readmsg       db 13,10,'Setup DESKJET '
setname       db 'COURIER 6/20'        ; yourname here <<
              db ' DEP 1989',13,10,'$'
badmsg        db 'FAILED - Error code '
ecode         db 0,13,10,'$'
handle        dw 0                    ; our handle number
setdta        db 27,'E'                ; RESET printer
:
: |||||-----|||
:
: Embed your favorite setup information here.
: What follows is an example
:
: |||||-----|||
:
:
yourdata:     db 27,'( 10U',27,'(s 0u0p 20h6v0s0b3t20' ; Courier 6/20 font
              db 27,'&188P'                ; 88 Lines/page
              db 27,'&18D'                ; 8 LPI
              db 27,'&11L'                ; skip over perf
              db 27,'&16E'                ; 6 line top margin
              db 27,'&a8L'                ; left margin =8
              db 27,'&a96M'               ; right margin =96
              db 27,'&s0C'                ; enable line wraparound
              db 27,'&176F'               ; 76 line text =6 line bottom
dtatail       db 0                    ; end of setup data area
:
: |||||-----|||
:
:          actual starting point of program
:
starter:      xor ax,ax                ; zero AX
              mov ah,09h              ; display string function
              mov dx,offset readmsg    ; give our message
              int 21h                 ; output to screen
:
: ** see if caller typed an optional printer address
              xor bx,bx                ; zero BX
              mov bl,byte ptr ds:[80H] ; get param count
:
: ** BX has the char count after the cmd, but no CR

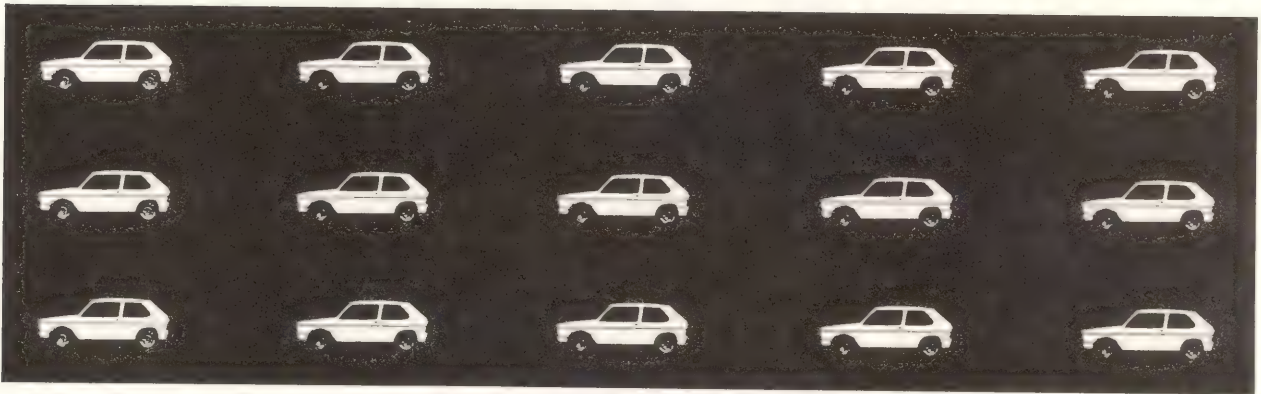
```

continued.

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perimenting will steer you in the right direction. Too small a font value will cause lines to vertically overlap. The actual command is {Esc}&l##D.

Note: Setting this to one-half or one-third the spacing you need is the easy way to double- or triple-space an entire document. If you are at 6 lpi, switching to 3 lpi is double-spaced. Remember to leave out any embedded form feeds or you'll end up with weird results.

The other method is to set the value in multiples of two points vertically. This is the source of the 1/48-inch increment used in the &l##c command. This is most useful for publishing quality output. Do it this way if you're unsatisfied with the control you get via the first routine.

4. Set the number of lines per page. 66 is the default for 6 lpi printing. Program 1 uses 88 lines at 8 lpi. The command is {Esc}&l##P.

5. Set perforation skip ON to enable the top margin command. This sets a top margin of three lines at the current lpi value. When setting the top margin, set the page length and skip perforation- (optional) before setting top margin. These are interactive commands. The commands are {Esc}&l1L (ON) and {Esc}&l0L (OFF).

6. Set the top margin. This is the number of lines at the current lpi. You can see why you set lpi and perforation skip first. Maintaining this order of operations is important. The command is {Esc}&l##E.

7. Set left and right margins. The right margin is based on the pitch. It's an absolute column value.

The command for left margin is {Esc}&a##L. {Esc}&a##M is for right margin.

8. Set the text length as an option. This indirect method is the only way I know to set a bottom margin. There's no bottom margin call, per se, in HP- PCL Level III. I don't know if this is an omission or not. Setting text length is sensible only when you use it in coordination with other commands. Used without margins, it can surprise you. This one is {Esc}&l##F.

Program 1... continued.

```

mov cx,bx          ; search for a nonblank char
jcxz no_opts       ; there were no opts found
mov byte ptr ds:[bx+81h],0 ; tag with a zero for DOS
push ds           ; making an ASCIIZ $ IF THERE
pop es            ; get ES pointing to our SEGMENT
mov di,81h        ; point to 1st character
mov al,32         ; put a blank in AL and
cld              ; be sure of our search direction
11: repe scasb     ; if CX <0 we have an option
jcxz no_opts       ; there were no opts found
mov dx,di         ; prepare to open a file handle
dec dx           ; move back one place
mov ah,03dH      ; open file
mov al,1         ; write only access code
int 21h         ; open handle
jc errep         ; if an error is found - show it
mov handle,ax    ; save handle #
jmp goahead      ; continue
errep: mov byte ptr ecode,al ; move the error code & prepare to
      add byte ptr ecode,48 ; make a digit 1-5 for user
      mov ah,09          ; disp $
      mov dx,offset badmsg ; point to the error msg
      int 21h          ; show msg
      jmp okend        ; go back
; ** use predefined default printer if no option was entered
no_opts: mov handle,04 ; say the deflt printer is our handle
goahead:
      mov ah,40h        ; output to a handle
      mov bx,handle     ; get temporary or defined printer
      mov dx,offset setdta ; point to data area begin
      mov cx,offset dtdat1 ; point to end of data area
      sub cx,dx         ; get current count of amount to send
      int 21h
closeHand: mov bx,handle ; recover handle number from RAM
      cmp bx,04        ; IF predefined handle (always present)
      jz okend         ; THEN just go - (no need to close)
      xor ax,ax        ; ELSE close temp handle END IF
      mov ah,03Eh      ; close file
      jc errep         ; show err if any detected
      int 21h         ; call dos function 21 hex
okend: int 20h         ; program end
code ends
end start

```

Note: Items 5 through 8 affect each other. The order sequence gives reliable and predictable results.

End Of Line Wrap is an important optional command that can be quite confusing. The actual command is {Esc}&s0C. Wrap OFF swaps a 1 for the 0. It's overlooked in DeskJet user documents. If you inadvertently leave this switch off, a line that exceeds the right margin will be truncated. On my DeskJet, the default is set to off whenever the right margin is set. I've always found this puzzling because this isn't mentioned anywhere in the manual. The PCL reference section on the DeskJet doesn't warn about this either. Remember, unless you're sure that no text

can overflow your right margin, enable this feature.

We have a whole family of these utilities to satisfy all our needs. Each has a descriptive name relevant to the typeface or the job that the printer will be used for. SETJET.ASM is a variant of a file called JCARDS, which is used to do paste-up for audio cassette insert card printing runs. The ways to change and use this utility are limited only by your needs and imagination. Now it's your turn. —Don Person is an independent consultant based in Albany, NY.

Would you like to continue to see articles on this topic?
Circle on reader card
yes 336 no 335

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CIRCLE 152 ON READER CARD

FROM THE LAB



RightWriter

A Program That Acts Like Your Personal Editor

If writing is part of your job, RightWriter Version 3.1 from RightSoft Inc. (Sarasota, FL) may be right for you.

RightWriter is not a word processor, nor is it a spelling checker. It works in conjunction with dozens of popular word processors to help you improve the quality of your writing. It uses a collection of more than 4,500 rules to scan through any document. It then checks for grammatical

and style imperfections and produces a summary report to help make your writing more powerful and readable.

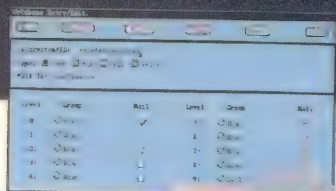
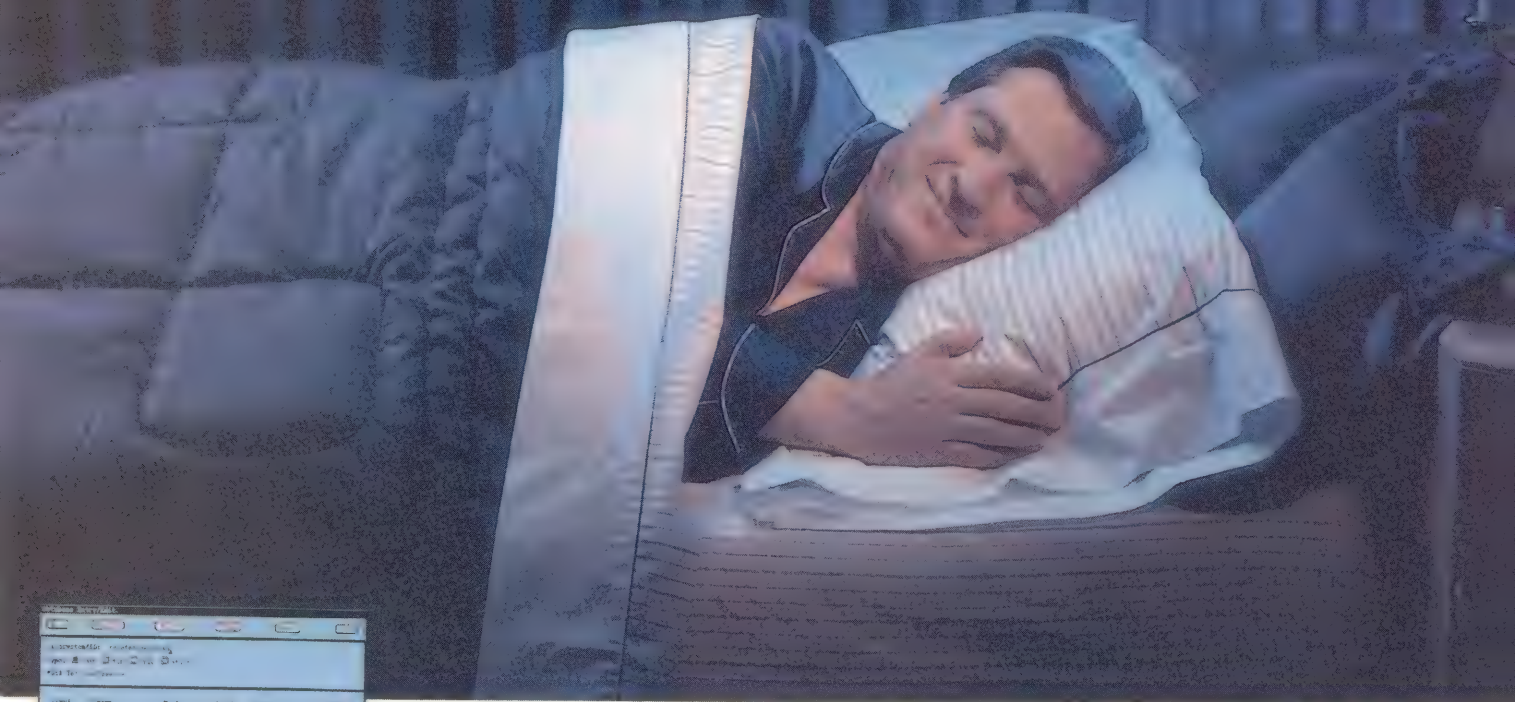
Configurations

RightWriter runs on most MS-DOS systems including the Vectra with a minimum of 384K of RAM. It operates on dual high-density floppy systems, but performs much better on a system that includes



Miles B. Kehoe

Another Night of Automatic Network Backups



When you buy Delta, you buy peace of mind. More than just another 2-Gb tape drive, the Delta Microsystems 2000T subsystem includes software and the best technical and hardware support in the industry.

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a hard disk drive. As tested, it requires MS-DOS 2.0 or later, although RightSoft will provide an earlier version if you need it. The program also will run as a DOS process in OS/2.

Installation

RightWriter is installed very easily. You don't have to make any special changes to any of your configuration files. All you do is copy the RightWriter disks into a directory on your hard disk. When you first start the program, it asks your name and the type of monitor you are using.

When RightWriter runs, it first makes a copy of the original document.

All analysis of your document is inserted as text into the copy so the original remains untouched. You can continue to edit the copy of your original until you are finished, then have the program remove any remaining comments for you.

RightWriter supports dozens of word processing formats in their native mode. You don't need to connect the file to ASCII before analyzing it.

Rules

RightWriter claims to have more than 4,500 rules of sentence structure and grammar that allow it to analyze your text. Many of the rules can be selected in a set-up screen. That way, you can decide which of the rules you want to use and those you want to ignore.

There are different styles of writing for different audiences and types of documents. RightWriter is aware of these rules for general business writing, technical reports, articles, manuals and documentation, proposals and fiction. You also can specify the education level of your audi-

ence: high school, college, or the general public. The program uses these to determine what vocabulary is appropriate in producing the summary.

Because so much business writing includes vocabulary specific to an industry or profession, RightWriter provides for a user dictionary of terms. This makes the

program ideal for medical or highly technical writing.

Compatibility

RightWriter defines three levels of compatibility with existing word processors: fully compatible, ASCII compatible and print compatible. In addition, the

SAMPLE PARAGRAPH AND REPORT OUTPUT

For example, these next paragraphs will be used in a test
 <<* S1. PASSIVE VOICE: be used *>>^
 of RightWriter. No single paragraph can show the power and features in any analysis program, but this way you will be able to see some of the reports available in RightWriter.
 ^<<* G3. SPLIT INTO 2 SENTENCES? *>>^

Any weak or passive voice will be flagged. Long sentences
 <<* S1. PASSIVE VOICE: be flagged *>>^
 and other style flaws will be highlighted so you can find
 <<* S1. PASSIVE VOICE: be highlighted *>>^
 those parts of your writing which add to the confusion of the reader and generally make it hard to follow.
 ^<<* S17. WEAK: generally *>>^
 <<* G3. SPLIT INTO 2 SENTENCES? *>>^
 <<* S3. LONG SENTENCE: 33 WORDS *>>^

<<*** SUMMARY ***>>

Overall critique for: c:\mbkending\incl.
 Output document name: c:\mbkending\incl.OUT

READABILITY INDEX: 9.70

4th 6th 8th 10th 12th 14th
 |****|****|****|****|***| | | |
 SIMPLE |---GOOD---| COMPLEX
 Readers need a 10th grade level of education.

Average Number of Words/Sentence: 20.750

STRENGTH INDEX: 0.28

0.0 0.5 1.0
 |****|****| | | | | |
 WEAK | | | | | | | STRONG
 The writing can be made more direct by using:
 - the active voice
 - shorter sentences
 - fewer weak phrases

DESCRIPTIVE INDEX: 0.43

0.1 0.5 0.9 1.1
 |****|****| | | | | |
 TERSE | | | | | | | NORMAL | | | WORDY
 The use of adjectives and adverbs is normal.

JARGON INDEX: 0.00

SENTENCE STRUCTURE RECOMMENDATIONS:
 15. No Recommendations.

<<WORDS TO REVIEW>>

Review this list for negative words (N), jargon (J), colloquial words (C), misused words (M), misspellings (?), or words which your reader may not understand (?).
 confusion(N) 1 highlighted(?) 1
 no(N) 1

<< END OF WORDS TO REVIEW LIST>>
 <<***END OF SUMMARY***>>

figure 1

program automatically can recognize the file format for most programs whether fully or ASCII compatible, making it very easy to use.

RightWriter is fully compatible with several popular word processors including Microsoft Word, Wordstar, WordPerfect, and all the word processors from Software Publishing Corp. A fully compatible word processor is one for which RightWriter can read and write the native file format.

ASCII compatible formats are used for any word processor that can create and read ASCII text. Programs such as Symphony from Lotus are in this category.

Print compatible programs are those that can print a text file to disk. RightWriter then analyzes this ASCII representation, which you can use as a guide when you return to your word processor.

I tested RightWriter with Microsoft Word 4.0, WordPerfect 5.0, SPC's Professional Write and HP's Executive Memo-maker. The latter was not on the list, but worked perfectly with RightSoft's application. RightWriter also supports Samna Write, which is the basis for HP Word/PC on an ASCII level, so it should work with HP Word/PC as well.

So you can see the kind of reporting you can expect from RightWriter, I processed the next two paragraphs through the

program. Check the two paragraphs below, then refer to *Figure 1*.

For example, these next paragraphs will be used in a test of RightWriter. No single paragraph can show the power and features in any analysis program, but this way you will be able to see some of the reports available in RightWriter.

Any weak or passive voice will be flagged. Long sentences and other style flaws will be highlighted so you can find those parts of your writing which add to the confusion of the reader and generally make it hard to follow.

Improvements

Even though I did like RightWriter, I think there is room to improve the product. For example, the program has a dictionary for jargon and common usage and phrases, yet does not offer any spell checking or thesaurus. While many word processors provide this functionality, I'd like to get all my evaluations done in one place.

There are one or two other things in the interface that were not as nice as they could be. For example, you configure the default directory for documents so RightWriter can locate them easily. When you are loading documents, you can enter just the filename and the program loads the file from the default directory. But the key that produces a list of files to help you remember the filename shows you the current directory, not the default document directory.

Finally, I'd like to see better integration between the word processor and RightWriter. I found that switching applications was a real bother. RightSoft has begun to address this objection with Word Perfect, and I hope they will continue to integrate with more word processors. Windows and NewWave seem ideal for this kind of application.

If you deal with words every day and want your written communication to be more concise, you'll find RightWriter is about the closest thing to having your very own personal editor. ■

RightWriter

SYSTEM REQUIREMENTS: 384K of RAM, dual high-density floppy system or hard disk drive. MS-DOS 2.0 or later.

PRICE: \$95

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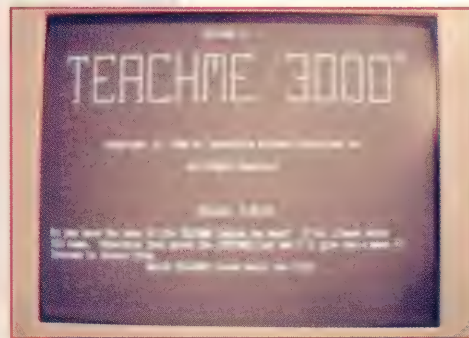
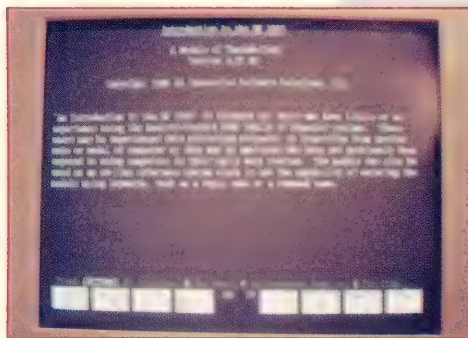
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CIRCLE 101 ON READER CARD

Learning By Doing

TeachMe/3000 And TMAuthor Encourage In-House Education



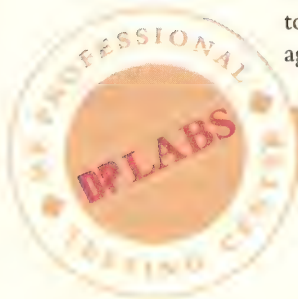
If you're a believer in continuing in-house education and agree with the adage "learning by doing," you'll want to take a look at TeachMe/3000 and TMAuthor from Innovative Software Solutions Inc., (Fairfax, VA).

TeachMe/3000 is a modular, interactive, online training system for your HP 3000. Thirteen TeachMe modules are available, ranging from an introduction to the HP 3000 up through system management.

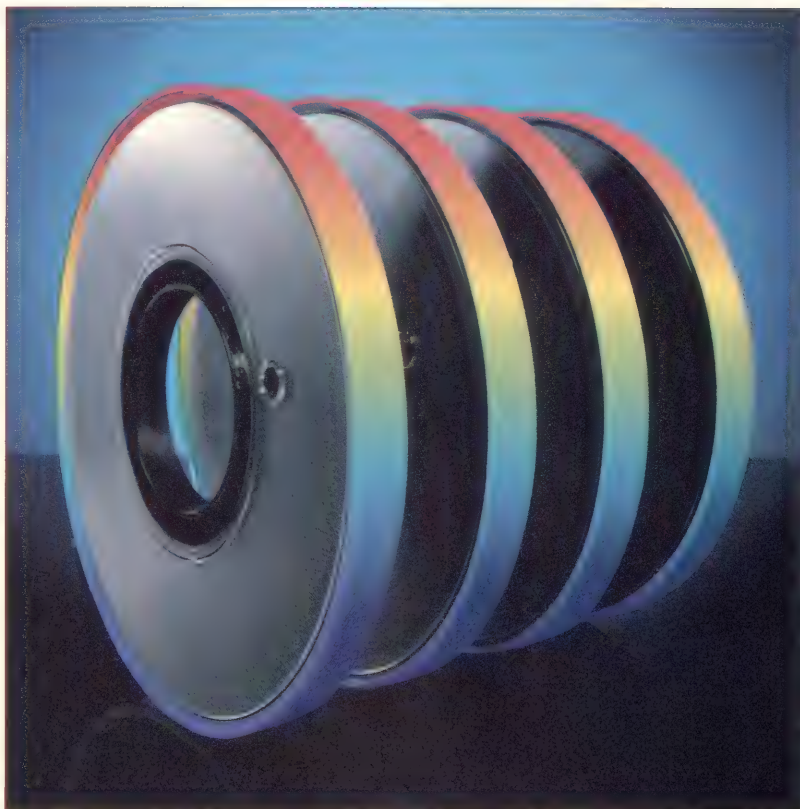
TMAuthor lets you create your own online custom-tailored modules, letting you put your documentation, policies and procedures online as ready-reference systems.

Installation

Installation was straightforward. After creating an ISS manager's account, an installation file was restored. Using Editor, you need to modify the installation file's first record to include passwords for



George T. Frueh



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BackPack/XL uses the same tape format as BackPack/V, so tapes created on a 900 Series HP 3000 can be restored on a stack system, and vice versa. HP's native mode STORE produces tapes which can't be restored on a stack HP 3000, and TRANSPORT mode, which produces compatible tapes, is very slow.

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MANAGER.SYS. The installation file takes care of the rest. As a final step, you can set up system-wide UDCs. These are supplied with the TeachMe/3000 modules.

Although TeachMe/3000 requires PH and PM capabilities to run, the software doesn't tamper with system tables. Users

accessing TeachMe/3000 won't put your system at risk.

The Modules

When you first run TeachMe/3000, a title screen appears prompting you to enter the name of the TeachMe module you'd like to view. You can type in the

module name or press RETURN for a menu containing a list of the modules from which to choose.

Modules range from foundation level, introductory material for the HP 3000 user through more advanced topics such as system management for the HP 3000. For example, the "Introduction to the HP 3000" module provides a nontechnical approach for the new HP 3000 user and covers basic MPE commands, the file system, the accounting structure, and basic MPE utilities such as SPOOK and FCOPY.

The "System Management for the HP 3000" module teaches you how to manage your system and covers startup, backup, spooling, tuning and contingency planning. Also included is a system performance monitor program and files of sample policies and procedures.

Each module is self-paced and provides features that let you move either forward or backward in a module, or stop the module and return to the main menu. For example, when a menu or screenful of information is presented, you can press RETURN to continue, "P" to display the previous screen of information, "M" to return to the previous menu, or "S" to stop TeachMe/3000.

Many of the modules are built upon smaller utilities, topics and sections. For these modules, you may proceed directly to these items when asked by typing in the heading, or you may view them in the order presented by TeachMe/3000.

Other Features

In an effort to test your skills, many modules contain optional questions for you to answer. At the beginning of these modules, you are asked if you would like these questions displayed. If you answer yes, the questions are displayed throughout the module.

As you answer the questions, TeachMe/3000 responds by telling you if your answers are correct or incorrect, and suggests areas in the module for you to review.

TeachMe/3000 also helps move you along through the modules and provides a certain margin of security by

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PC-EDIT/1000 provides the features that HP EDIT/1000 users have come to expect: Screen and line modes, interactive and batch, powerful character string search and replacement commands are all available. The command stack window gives the user access to the last 20 commands and the UNDO command reverses the last line mode command executed.

PC-EDIT/1000 also provides the user with new features: Left and right scrolling in screen mode, automatic screen and line mode tab compensation, and screen mode brackets that can not be over-written.

PC-EDIT/1000 runs on PC-DOS or MS-DOS version 3.2 or greater. PC-EDIT/1000 requires 512K bytes of RAM and a hard disk or two floppies.

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CIRCLE 134 ON READER CARD

placing time limits on users response. For example, the time between key-stroke entries must be under five minutes and seconds, otherwise TeachMe/3000 logs you out. There is, however, a final 60-second warning before you are logged out.

TMAuthor

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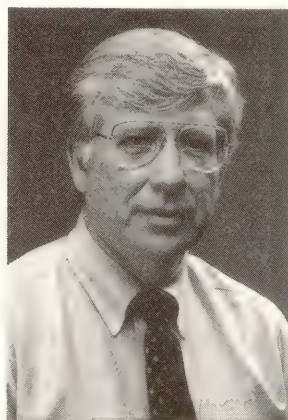
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PC TIPS

Miles B. Kehoe

How To Set And Use Environment Variables

Out Of Environment Space?

in-house software for a text retrieval project. A few hours after I handed over the software, she called. Apparently the installation procedure had led to an error on her system. It seems that in setting her path and adding a few environment variables to her system, she filled all of the environment space available on her system.

The solution to the problem is easy and quick. Well, quick if you can find out the version of MS-DOS you are using, and can find the obscure reference in the manual and make the right change in your system.

Why An Environment?

If you've used PAM as your primary access to your Vectra, you probably have not been aware of the "environment" in which your applications execute. To get the most out of the rest of this column, I suggest you exit PAM to the MS-DOS commands and then read on.

Sometimes you want to store information about your system in an area where programs can get to it, yet which is easily changed. Like many larger operating systems, including HP-UX and MPE, MS-DOS provides such storage in an area called the "environment."

At the MS-DOS prompt, type the command SET. You'll see the current contents of your Vectra's environment. You can see the results of this command from my system in *Figure 1*.

The copy of COMMAND.COM in memory maintains the text in *Figure 1*, and any program can request information about the environment with an operating system call. This is exactly how the MS-DOS command processor handles locating programs. When you type

a line, DOS checks to see if it starts with one of the internal commands such as DIR or VER or a program in the current directory.

If it isn't, the command processor checks the value of the PATH variable in the environment. It then searches through the directories in your environment to find a program matching the line you entered.

Any program can do the same, and more and more programs are using environment variables to allow any user to customize the program to a system.

Batch Access To The Environment

You can take advantage of environment variables in your batch files in MS-DOS

Version 3.0 and above. For example, suppose you wanted to build a menu system based on batch files. By assigning different values to the environment variable called MENU, your batch files can determine what level of expertise a user has set.

If MENU contains ADVANCED, the batch file will display short messages. If MENU contains "BEGINNER," the messages will be more complete. Consider the batch file in *Figure 2*.

Note that the batch file attempts to provide some internal control. If MENU is undefined when the file executes, or if it isn't one of the two anticipated values, this batch file sets the level to BEGINNER. If the user wants to run the program in the advanced mode, he can type the following command at the MS-DOS prompt

```
FIGURE 1

COMSPEC=C:\COMMAND.COM
PROMPT=$p$g
TEMP=D:\TMP
PATH=C:\BAT;C:\BIN;C:\DOS;C:\WIN;
```

Typical Environment

```
FIGURE 2

@echo off
:Start
if %MENU% == ADVANCED GOTO ShortMenu
if %MENU% == BEGINNER GOTO LongMenu
SET MENU = BEGINNER
GOTO Start
:ShortMenu
REM User is in advanced mode with short menus
....
....
:LongMenu
REM User is a beginner, use detailed menus
```

Using Variables in Batch Files

or place it in AUTOEXEC.BAT:

```
SET MENU=ADVANCED
```

If you find yourself having to write batch files for other people to use, you might find a number of other uses for environment variables.

Adding To The Path

One of the things that MS-DOS lacks that I find really useful in HP-UX is the ability to add a directory to the current PATH. By using a simple batch file and an environment variable or two, you can implement such a feature on your system.

In my AUTOEXEC.BAT, I define a variable called BASEPATH and set my working PATH from it. The relevant lines of AUTOEXEC.BAT are shown in Figure 3.

In my C:\BAT directory, I have another batch file called ADDPATH.BAT shown in Figure 4.

To add a directory to the current

FIGURE

3

```
SET BASEPATH=C:\BAT;C:\BIN;C:\DOS;C:\WIN;  
SET PATH=%BASEPATH%
```

Setting PATH and BASEPATH

FIGURE

4

```
@echo off  
if %1 != x GOTO Continue  
echo Please specify a valid directory to ADDPATH  
goto Quit  
:Continue  
echo Adding %1 to existing PATH  
set PATH=%BASEPATH%1
```

Modifying the Existing Path

PATH, simply type:

```
ADDPATH C:\NEWDIR
```

Because the semicolon normally provided with a PATH is in the batch file, you don't have to provide it.

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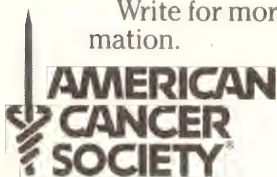
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enter only valid directory names, you can use the ADDPATH.BAT file as shown. If you like more safety, you might want to include a check to see the directory entered as the parameter is valid. Not sure about that? It is, after all, another place where MS-DOS doesn't have as rich a command set as HP-UX.

To restore the original PATH, you need to create a batch file to perform the following command:

```
SET PATH=%BASEPATH%
```

Unfortunately, MS-DOS will not allow you to enter the command interactively. You will need a batch file. Mine is called RP.BAT.

An alternative way to accomplish the same thing is to store the output of the SET command in a file with a .BAT extension. Then, to restore the environment, type the name of that file. For example, create the saved environment file by typing:

```
SET > SAVE.BAT
```

Then, to restore the environment values, simply type:

```
SAVE
```

Even this will cause a few errors to appear. Because of the way the file is saved, only the "built-in" keywords such as PATH and COMSPEC are restored.

Environment

MS-DOS provides 160 bytes of storage as the default environment space. You can imagine that, as you begin to use more environment variables, you may find yourself using up those 160 bytes pretty fast. If you do, you will get the same error my friend found: Out of Environment Space. To gain more space, you can change the entry in your CONFIG.SYS.

If you're using MS-DOS Versions 2.X through 3.1, you will need the SETENV utility program. Microsoft usually provides it with a number of their language

products. Enter the command:

```
SETENV COMMAND.COM <SIZE>
```

Where <size> should be any value between 160 and 992 bytes. DOS will round the number you enter upwards to a multiple of 16 bytes.

You might want to upgrade to a newer version of MS-DOS if you're still using one of these versions you might think about upgrading.

If you have MS-DOS 3.0 or 3.1, Microsoft included an undocumented feature in CONFIG.SYS. To upgrade the size of the environment, enter the following statement in your CONFIG.SYS:

```
SHELL=COMMAND.COM /E:<SIZE> /P
```

In this case, <size> should be the number of 16 byte paragraphs to allocate. The number should be in the range from 10 (the default) to 62, which will give you 160 to 992 bytes for your environment.

If you are using MS-DOS 3.2 or 3.3, the line should read:

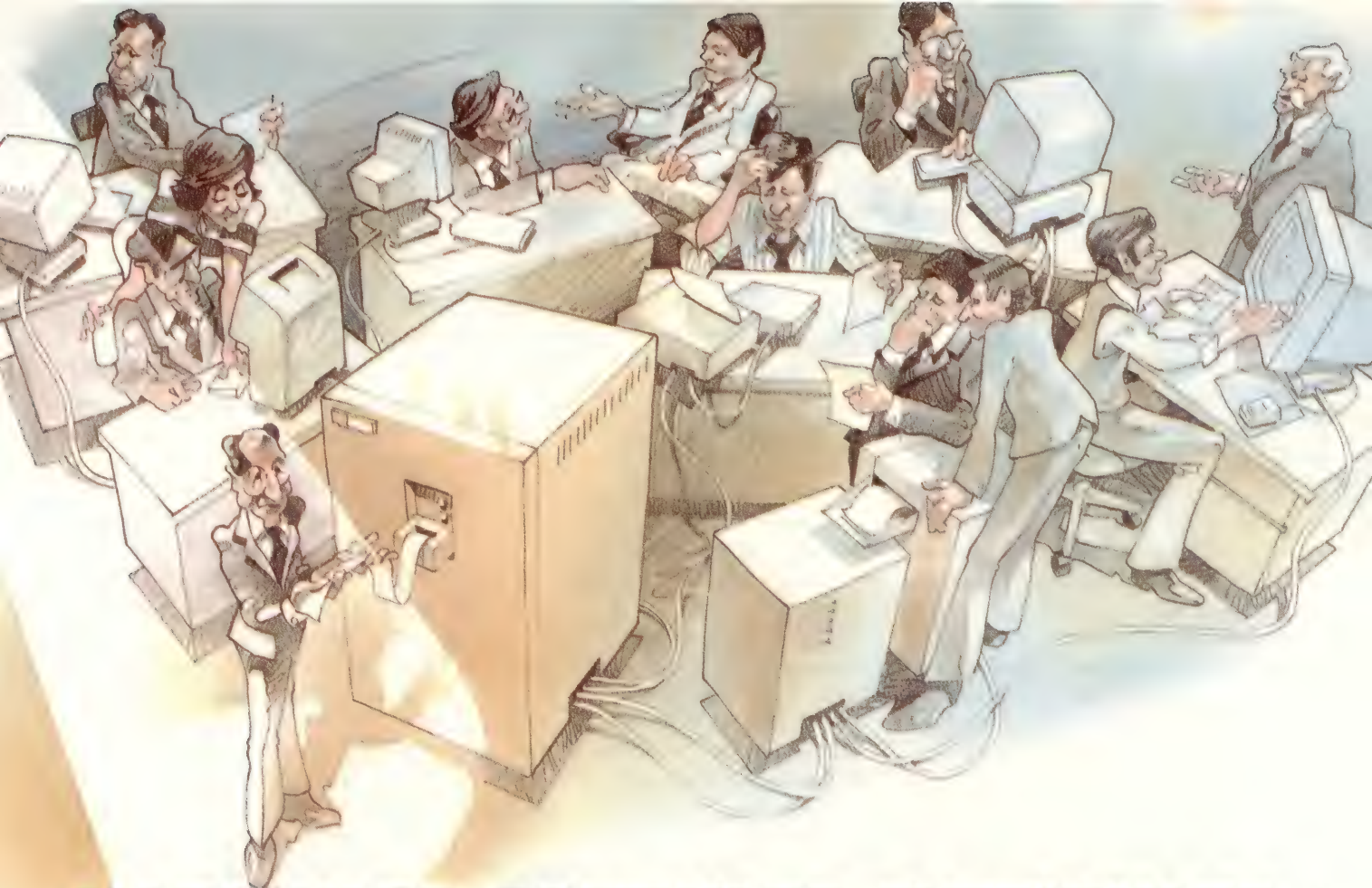
```
SHELL=COMMAND.COM /E:<SIZE> /P
```

Here, <size> specifies the number of bytes and can range from 160 bytes to 32,768 bytes.

In both cases, the /P switch specifies that MS-DOS should load and execute your AUTOEXEC.BAT file. If you omit it, you may find your AUTOEXEC does not execute.

One last word about setting and using environment variables. When you load most pop-up or TSR programs they will execute in the environment which was active when the program is loaded, *not* when you first invoke it. This means if any of your TSRs expect a path or environment variable to be set, be sure to set the variable *before* you load the TSR. This should work for any of your programs. — Miles B. Kehoe is an online support manager for Verity Inc., Mountain View, CA.

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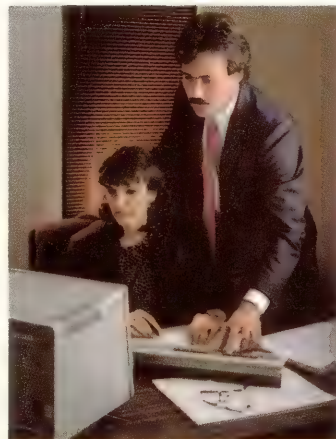
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HP-UX

Andy Feibus

Porting Techniques

If you're planning to port the code from one operating system

to another, I assume that you'll want to do so without changing the language in which the code is written. I also assume that you want to maintain *backward compatibility* (only one version of your product's code is maintained). Although your porting needs may not encompass these requirements, the techniques discussed can be tailored to your porting efforts.

The porting of an HP 1000 RTE-A FORTRAN-based product to an HP 9000 Series 800 HP-UX computer (without using the RTE emulator) is used for all examples in this article.

The first step to porting your code is analyzing the code to determine the types of system-specific operations being used. An **EXEC** system call on the HP 1000 is one example of a system-specific operation. Once you have identified all unique types of system-specific operations, determine which of these operations can be emulated on the target platform.

Some of the operations to emulate only require that a subroutine be written on the target system that is identical in both form and function as a subroutine already provided on the original system. An example is the **CASEFOLD** subroutine in the HP 1000 Relocatable Library. To emulate this function, write a subroutine (named **casefold**) on the target system with the same arguments and the same actions (converting all characters in a FORTRAN string to uppercase). Be sure to link (on the target system) this subroutine to all programs referencing the **CASEFOLD** subroutine.

Other operations to be emulated may

require that a new subroutine be added to both the original system and the target system. The new subroutines have the same arguments and results, but contain code that is specific to the system on which the subroutine resides.

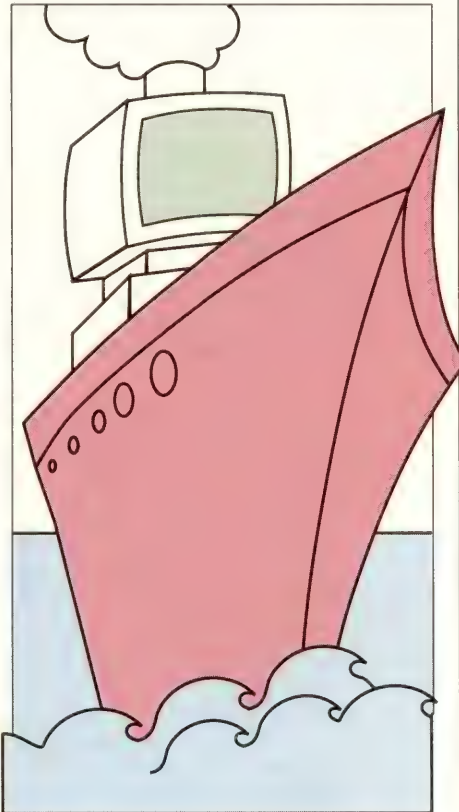
For example, resource locking on the HP 1000 is similar to the concept of semaphore locking on the HP 9000; however, because locking a resource requires multiple system-specific calls, you may find it easier to create a set of *parallel subroutines* (which have the same arguments and provide the same results, but are coded specifically for the system on which the subroutine resides) to perform a lock operation. Once these subroutines are created and tested, change the original source code to reference the

new subroutine instead of the system-specific code. Make sure that all programs referencing this subroutine are linked with it *on both systems*.

For an HP 1000 to HP 9000 port, you may need about 40 subroutines on the HP 9000 to emulate those routines provided in the HP 1000 Relocatables Library. You also may need about 20 more subroutines to handle those calls that can't be emulated without requiring parallel subroutines (e.g., **EXEC**, **CLRQ**, **ABREG**, etc.). When porting the code from one system to another, don't port the system-specific subroutines.

In some instances, a parallel subroutine only may be needed for a single operation in a single section of your code. An alternative approach to using parallel subroutines is *compiler directives*. In certain languages (for example, **C**), compiler directives are provided to permit the user to compile a section of code only when a certain compiler option is specified. For code written in these languages, compiler directives provide an easy way to compile sections of code only on the computer that *can* compile this code. Use this porting technique only for small sections of code, because debugging may be complicated by using compiler directives.

Sometimes small coding differences are required that aren't easily handled by compiler directives or parallel subroutines. An example of this problem is the manner in which your terminal is accessed from FORTRAN. On the HP 1000, the terminal is accessed with unit number **1** for both input and output. On the HP 9000, no unit is specially set for the user's terminal; however, unit number **5** is used by **stdin** (normally associated with the user's keyboard) and unit



number 6 is used by stdout (normally associated with the user's terminal screen).

The technique for handling this difference is system-specific **INCLUDE** files. To use the unit number example, change the HP 1000 code from:

```
READ(1, '(A') VARIABLE  
WRITE(1, '(A') VARIABLE  
  
to  
  
INCLUDE system.inc  
READ(IN_UNIT, '(A') VARIABLE  
WRITE(OUT_UNIT, '(A') VARIABLE
```

Now, define the file **SYSTEM.INC** on the HP 1000 to include the lines:

```
INTEGER*2 IN_UNIT, OUT_UNIT  
PARAMETER (IN_UNIT = 1)  
PARAMETER (OUT_UNIT = 1)
```

And define the file **system.inc** on the HP 9000 to include the lines:

```
INTEGER*2 IN_UNIT, OUT_UNIT  
PARAMETER (IN_UNIT = 5)  
PARAMETER (OUT_UNIT = 6)
```

When the code is compiled on either system, the correct input and output unit numbers are used. This technique is also useful for handling certain errors that have different error codes on the different systems. Don't port system-specific **INCLUDE** files.

Another type of change required for most ports is the elimination of default declarations. For example, declaring a variable as type **INTEGER** in FORTRAN creates a two-byte storage area on the HP 1000 and a four-byte storage area on the HP 9000. To ensure consistency between the original and the target system's products, enforce a length on all declarations (e.g., **INTEGER*2** or **INTEGER*4**).

Sometimes a feature change is required because users use a system feature differently on the target system compared to the original system. For example, on the HP 1000, the printer is accessed directly by writing directly to the printer's logical unit number (usually 6); on the HP 9000, most users use the **lp** spooler to access the printer. Parallel subroutines

are one way in which this problem can be handled.

The above techniques suffice if all operations used in your product can be emulated on the target system; however, this is almost never the case. For those operations that can't be emulated (or easily emulated) on the target system, you must determine how important the operation is to the product. If the operation can be removed from the product without deleting a key feature to your system, then do so. Otherwise, you must design and code a different way (one that can be emulated on the target system) to provide the same feature.

Once all the changes have been made and the same code operates on both systems (except for the parallel and system-specific subroutines), you should take advantage of the source code management tools available on HP-UX (if HP-UX is your target system). These tools include **make**, **SCC**, and **RCS**.

Make is designed to automatically perform operations on your source code any time that the source code has changed. The most common use for **make** is to compile and link your programs whenever one of the source code files has changed. Additionally, **make** can also be used to automatically print a new copy of any source code file that has changed or automatically recompile all files in your product whenever the system is updated with a new compiler. You may also use **make** to automatically copy a changed source file to another system (if the two systems are connected via a communications link; e.g., a local area network); this operation can effectively cause a report of your product any time that part of the product is changed.

SCCS and **RCS** are HP-UX's source code control systems. Either **SCCS** or **RCS** can be used to limit access to source files to certain users and to prevent multiple users from editing the same file (and overwriting each other's work).

— *Andy Feibus is president of Processware Inc., Atlanta, GA.*

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The Basic Rules

RDBMS

Fabian Pascal

There are several of Codd's relational fidelity rules that can be

considered basic. Let's start with rule 0 that defines the overall thrust of the relational approach.

Any system that is advertised as, or claims to be a relational DBMS, must

- manage databases
- entirely through its
- relational capabilities.

A DBMS is a database *management system*. The name implies the requirement that the *system* must *manage* databases. Traditional database products, however, are letting *users* perform many management tasks. Thus, in the Five Table school example (STUDENTS, CLASSES, TEACHERS, ATTENDS, INSTRUCTS), to find the classes and teachers of a particular student, dBASE requires that users formulate detailed instructions (a procedure) for the system to follow in order to achieve the desired data operation (Figure 1).

In other words, rule 0 states that first, a system must be a true DBMS: It must manage the database on its own.

Only then comes the requirement that the managing job be done in a *relational* way. What this "way" entails is described by the structural, integrity, and manipulation features of the relational model, as well as in the 12 rules subsumed under rule 0.

Moreover, the relational database management capabilities must be *comprehensive*. If they aren't, you will have to resort to nonrelational workarounds. In other words, if you have to write pro-

cedural code for database operations, then the DBMS isn't truly or fully relational.

Note: Nondatabase operations, such as screen layouts, report formatting or menu development, are not "database" functions and thus are outside the scope of the relational model.

Figure 2 shows that rule 0, at the top of the functional hierarchy, is fundamental. It immediately implies DBMS compliance with four other rules, that I call "basic."

Note: The round nodes in the figure represent features; the square ones, fidelity rules.

Information Rule No.1

Rule 1 at the bottom left part of Figure 2 makes explicit the familiar requirement that a relational DBMS must present all data to users as R-Tables and nothing but R-Tables:

- All information in a relational database must be represented
- explicitly
- at the logical level
- in exactly one way
- by table values.

Data language is how users interact with the DBMS to exploit the relational capabilities of the DBMS.

It prohibits a DBMS from presenting any data *implicitly* (e.g., system generated internal storage numbers or pointer links), or anything other than table values. Otherwise, the data can't be handled mathematically by the table operations, and will impose the burden of involvement with internal storage considerations. Such involvement is complex and irrelevant to the data tasks at hand.

Comprehensive Data Language Rule No.5

The data language is how users interact with the DBMS to exploit the relational capabilities of the DBMS. If the DBMS complies with rule 1, the Comprehensive Data Language Rule specifies what is necessary for the data language to tap

FIGURE 1

```
SELECT 2
USE teachers INDEX t#...
SELECT 3
USE classes INDEX c#...
SELECT 4
USE t_classes INDEX tc#...
SET RELATION TO t# INTO
teachers
SELECT 5
USE s_classes INDEX sc#...
SET RELATION TO c# INTO
t_classes
```

```
SELECT 1
USE students INDEX sname...
SEEK 'ALEX, REED'
SELECT s_classes
SEEK students->s#
DO WHILE students->s# = s_classes->s$
    SELECT classes
    SEEK s_classes->c#
    ? teachers->tname, classes->ctime, classes->ctitle
    SELECT s_classes
    SKIP
ENDDO
```


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And to preserve the compatibility of old applications with the DBMS and its databases, these applications must be allowed to bypass and potentially *subvert* the relational interface. Rule 12 makes it clear, therefore, that a relational interface is not the same as a true relational engine, and is risky for users.

If a DBMS has a low-level (procedural) language, it shouldn't be allowed to

- *subvert*
- *bypass* the
- *integrity rules*
- *security rules* expressed in the high-level relational language and
- *stored in the system catalog.*

Thus, rule 5 insures that there is *no need* for subversion; rule 12 ensures that subversion is *not possible*. Frankly, I would not want to be a database administrator in an environment where rule 12 is not enforced.

A Note On Rule No.4

How can subversion be prevented by the DBMS? Integrity constraints and security authorizations must be stored and dynamically managed by a relational DBMS in a central "system catalog." All access to the data is through this catalog, and rule 12 implicitly requires its existence. Figure 2 shows it at the bottom of the functional hierarchy, with many of the other features and fidelity rules depending on it.

In fact, there is a rule specifically dealing with the catalog, and it is also a basic rule. But it will be easier to understand the significance of the catalog and its rule after all other rules have been explained, for which reason I postpone it to a future column. —*Fabian Pascal is president of micro-paSQL, an independent Washington DC consulting firm specializing in relational database management and SQL on the PC.*

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HP PROFESSIONAL

Continued from page 28.

computers, It automates each tape library function, including cataloging, selecting, labeling, scratching and reporting.

The new version of TAPES takes full advantage of HP's planned enhancements to labeled tape operations on MPE.

Contact Unison Software, 675 Almanor Ave., Sunnyvale, CA 94086; (408) 245-3000.

Circle 390 on reader card

TESTMGR/3000 Decreases Testing, Maintenance Costs

Software Development Resources has released TESTMGR/3000, a software tool that decreases software testing and maintenance costs while improving the quality of software developed on HP 3000 computers.

TESTMGR/3000 utilizes record/playback technology to capture input keystrokes, terminal I/O and IMAGE database I/O. The data captured is stored in a database and can be used repeatedly when retesting an application or comparing test results to verify an application program performs as expected.

Contact Software Development Resources, 845 Berkeley Way, Vista, CA 92084; (619) 726-9753.

Circle 394 on reader card

Interbase V3.0 Eases Application Development

Interbase Software Corp. has announced the release of Version 3.0 of its relational database management system, InterBase.

This new version increases the functionality of the database kernel and enhances InterBase's ability to support complex applications running on multivendor networks. InterBase Version 3.0 supports comprehensive distributed database processing among a wide variety of industry-leading platforms, including the entire HP-UX line and HP's entire Apollo line.

To increase application knowledge in the database kernel, Interbase has added event alterers, array support, blob filters and user-defined functions. Another major enhancement is multithreaded servers.

The cost of InterBase Version 3.0 will range from \$5,000-\$100,000, depending on machine configuration.

Contact Interbase Software Corp., 209 Burlington Rd., Bedford, MA 01730; (617) 275-3222.

Circle 395 on reader card

Discoversoft Ships TreeSaver For LaserJet

Discoversoft Inc. has shipped TreeSaver, a memory-resident utility for HP LaserJet printers that provides photo reduction of reports and documents.

Using TreeSaver, the LaserJet can print two or four pages on one. It also reduces single pages, allowing existing software to print "shrink-to-fit" reports for Day-Time and other personal organizers. TreeSaver also quickens laser throughput by reducing page counts and optimizing LaserJet printer commands.

The software runs on the IBM PC and compatibles and has a retail price of \$89.95. It works with the LaserJet Plus and LaserJet Series II.

Contact Discoversoft Inc., 1516 Oak St., Alameda, CA 94501; (415) 769-2902.

Circle 397 on reader card



Discoversoft's TreeSaver is a photo reduction software for the LaserJet.

Proactive Systems Announces DB-CHART Module Of Fantasia

Proactive Systems has announced DB-CHART, a new software product for displaying the structure of IMAGE and TurboIMAGE databases. The software is an optional module of the Fantasia laser printing product and uses the graphic functions of Fantasia to draw the chart in a few seconds.

By entering a database name you get a graphic display of the sets and paths of the database. The software accesses the database root file and decodes the information in it before drawing the database on a LaserJet printer.

DB-CHART costs from \$300 to \$1,000 dependent on HP 3000 computer model.

Contact Proactive Systems, 339 S. San Antonio, Los Altos, CA 94022; (415) 941-9316.

Circle 393 on reader card

MH&Co. Family Now Includes Inventory System

Mitchell Humphrey & Co. has announced the MH&Co. Inventory System to the family of MH&Co. Financial Management Systems. This new system works in conjunction with your order entry, purchasing and planning systems to help effectively balance trade-offs between inventory carrying costs and availability on demand.

The new system forecasts inventory requirements and sales based on prior year results, taking into account seasonal trends, current year trends and anticipated changes. It compares actual and forecast sales, receipts and inventory turns; tracks market value, shrinkage and obsolescence allowance; reviews inventory turns by ABC classification and tracks inventory movement with information on item transfers and shipments. Contact Mitchell Humphrey & Co., 11720 Borman Dr., St. Louis, MO 63146; (800) 237-0028; (314) 991-2440.

Circle 389 on reader card

DBA Consulting Develops Cold Copy

Data Base Applications Consulting Inc. developed Cold Copy, the COBOL copy library to Excelerator dictionary translation system.

Cold Copy reads COBOL coded record layouts of existing databases or files, which are stored in a mainframe copy library and creates

an Excelerator defined transfer file. This transfer file is then imported into an Excelerator dictionary via its XLD-Interface subsystem. Cold Copy automates the entry of information into Excelerator's dictionary and accurately transfers database or file definitions from the mainframe into the CASE tool dictionary.

Cold Copy is available for the HP 3000, IBM MVS, VSE and VM/CMS. Pricing is

from \$2,595 to \$5,995 depending on hardware.

Contact Data Base Applications Consulting Inc., 2626 N. Lakeview, #1901, Chicago, IL 60614; (312) 281-1883.

Circle 388 on reader card

GEC-MARCONI Integrates Alsys Ada With G-Ada

GEC-MARCONI Software Systems has

integrated its G-Ada Development Workbench V3.0 with the Alsys HP 9000/300 Ada Compilation System and Toolset, V5.0. Develop also is underway for a G-Ada/Alsys product for the 386 platform.

G-Ada is a "front-end" Ada development and maintenance work-bench using a menu-driven approach and the X Window system. G-Ada simplifies the development process for Ada by acting as an assistant to the programmer, the library system and the configuration manager, and by providing an interface to the toolset and to the underlying system for more comprehensive Ada development capabilities. The Alsys Ada Environment is used to compile, bind, debug and optimize the code.

Contact GEC-Marconi Software Systems, 1850 Centennial Park Dr., Suite 300, Reston, VA 22091; (703) 648-1551.

Circle 387 on reader card

Robelle Enhances QEDIT For HP 3000s

Robelle has added new features to QEDIT, the full-screen editor for all HP 3000 computers.

QEDIT version 3.8 includes several enhancements. Listredo Command enables you to edit and repeat your last 40 commands. The Redo and Before Commands work on the redo stack. Redo uses HP-style modify; Before uses QEDIT-style (control keys). The Do Command repeats without editing.

Function keys now enable browsing in addition to the LJ command. Browsing includes \$Include files. The List Command searches extremely big files (up to 99,999,999 lines). New ZZ, "the magic marker," marks any group of lines for use in any command, including full-screen editing.

These and other new features are explained in the documentation on the update tape. Contact Robelle Consulting Ltd., 8648 Armstrong Rd., R.R. #6, Langley, B.C. Canada V3A 4P9; (604) 888-3666.

Circle 385 on reader card

New Software Accompanies CADVANCE PC-CAD

ISICAD Inc. has announced a new software package that accompanies its CADVANCE PC-CAD package. The CADVANCE Review Station software offloads plotting and review functions from CADVANCE so that primary CADVANCE workstations can be

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dedicated to design, production drafting and information management tasks.

This product facilitates client presentations and slide-show demonstration in addition to plotting and drafting review. It is priced at \$495.

Contact ISICAD, 1920 W. Corporate Way, Anaheim, CA 92803-6122; (714) 533- 8910.

Circle 384 on reader card

SLDC, Neuron Data Bridge GemStone, NEXPERT OBJECT

Servio Logic Development Corp. (SLDC) and Neuron Data have developed a bridge between GemStone and NEXPERT OBJECT, an expert system shell for commercial and industrial AI applications.

NEXPERT OBJECT is rule- and object-based; GemStone is the first object-oriented database management system to interface with NEXPERT OBJECT.

The new GemStone bridge allows users to access and represent GemStone's complex data structures in the NEXPERT environment, where the data can be intelligently

reasoned upon by NEXPERT rules. Because GemStone is object-oriented, it can more fully exploit all of the advanced capabilities of NEXPERT.

Contact Servio Logic Corp., 1420 Harbor Bay Parkway, Suite 100, Alameda, CA 94501; (415) 748-6200.

Circle 383 on reader card

Emperor, Advisor Improve Data Center Productivity

Carolian Systems International Inc. has released two new data center management products, Emperor and Advisor. They mark the company's entry into the ASK marketplace with software integrated with ASK's financial and manufacturing packages.

Emperor, a batch processing monitor and scheduler, automates many tasks usually performed manually by the operations staff. With Emperor in place, a group of related or unrelated jobs can execute in sequence while other groups of jobs are executing on the same HP 3000.

Advisor is a system alert program that

watches an HP 3000 for system halts, job aborts, job run length errors or any other situation defined as critical. In conjunction with Emperor, Advisor can monitor your entire batch processing operation.

All Carolian software runs on both MPE V and MPE/XL operating systems. Contact Carolian Systems International Inc., 3397 American Dr., #5, Mississauga, Ontario, L4V 1T8, Canada; (800) 263-8787.

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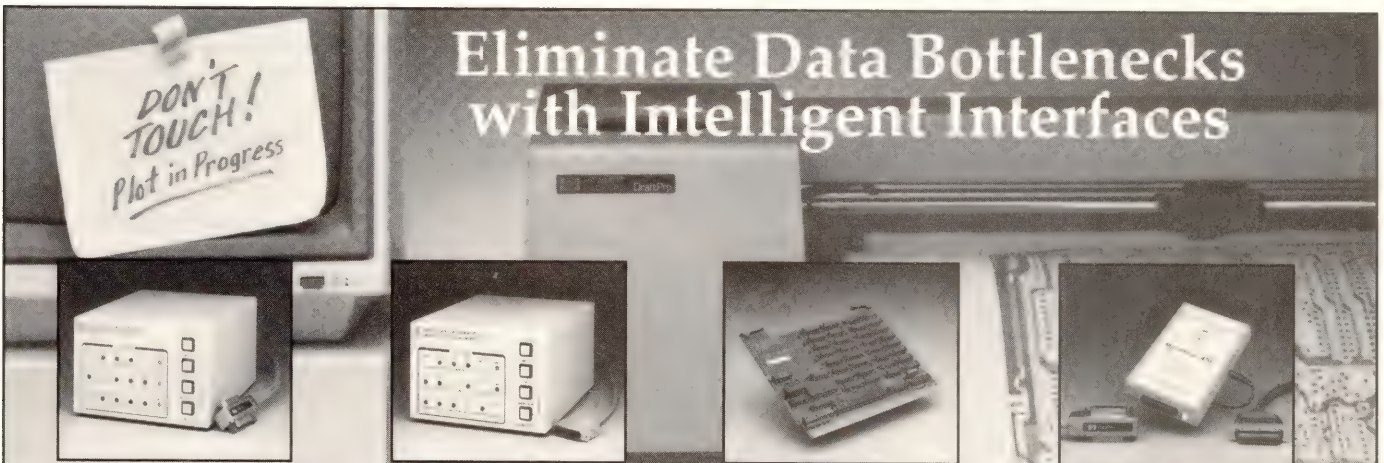
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RF EXPRESS 1.1 100 Percent Portable

Eagle Consulting Group has introduced RF EXPRESS Version 1.1, a 100 percent portable, 100 percent online hand-held terminal driver.

The new release allows up to 10 remote locations to be controlled by one RF EXPRESS driver. ECD's MM3000 RF EXPRESS module allows users of Materials Management/3000 to have 100 percent online, 100 percent portable terminal trans-

action access.

Contact Eagle Consulting & Development Corp., 170 Kinnelon Rd., Suite 3, Kinnelon, NJ 07405; (201) 838-5006.

Circle 381 on reader card

Tronix Unveils UNIX Kernel Debugger

Tronix International Data Corp. has released a UNIX/XENIX Kernel Debugger.

The Tronix Kernel Debugger is a

symbolic debugger that runs on SCO's System V/386 and XENIX/386; Interactive Systems' 386/IX, Everex's Enix and AT&T's System V Release 3.2. It is designed to let the UNIX/XENIX system software engineer control the execution and environment of software within the UNIX/XENIX operating system.

The Tronix Kernel Debugger enables programmers to set break point at data addresses either conditionally or unconditionally in the UNIX/XENIX kernel, trace any process's stack in the UNIX/XENIX kernel, display their data within the UNIX/XENIX kernel in a predefined data structure format and more.

The product sells for \$475.

Contact Tronix International, 10601 S. DeAnza Blvd., Ste. 216, Cupertino, CA 950143; (408) 973-8559.

Circle 376 on reader card

Infocentre Releases MicroSpeedware Version 3.50

Infocentre has released MicroSpeedware Version 3.50, a 4GL environment for PC-compatibles. The product consists of two parts, a database management system that is compatible with Image/3000, the DBMS used on HP's minicomputers, and MicroReactor full-function version of Reactor, Infocentre's 4GL for the HP 3000.

Speedbase is Infocentre's PC version of TurboImage and has additional features including key word indexing and single and multiset retrieval.

MicroSpeedware is available for \$1,500 for the development version and \$400 for the run-time version.

Contact Infocentre Corp., 7420 Airport Rd., Suite 201, Mississauga, Ontario Canada, L4T 4E5; (416) 678-1841.

Circle 363 on reader card

Bonafide Education Upgrades Training Videos

Bonafide Education (Boston, MA) has announced the availability of free version upgrades for its self-paced PowerHouse training videos. The current video tapes cover PowerHouse training through version 5.06 (5.09 Spectrum). When Cognos ships a new version, Bonafide will supply customers with a video tape that outlines the changes in the products.

Contact Bonafide Education, 184-B

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HP Introduces DDS-Format Tape Drives

HP has introduced two digital-data-storage (DDS) format tape drives for commercial and technical HP computer systems. The HP Series 6400 Models 1300H and 1300S use digital-audio-tape (DAT) technology to store large amounts of data on DDS cassettes.

The Model 1300S features a small-computer systems interface (SCSI); the Model 1300H has an HP-IB interface. The drives are currently supported on most HP 3000 and 9000 computer systems. HP also intends to support the products on the HP Vectra PC and on Apollo workstations.

The HP Series 6400 Models 1300H and 1300S drives were designed for high-performance workstations, small mini-computers and LANs with Winchester capacities of 300 MB or more. The Model 1300H is \$7,500; the Model 1300S is \$5,700.

FOR YOUR INFORMATION

■ Peachpit Press (Berkeley, CA) has announced *DeskJet Unlimited*, by Steve Cummings. It gives step-by-step procedures for using the DeskJet with popular applications such as WordPerfect, Word and dBASE. (415) 527-8555.

■ Software Research Northwest (Vashon Island, WA) has opened its new headquarters. The new address is Software Research Northwest Inc., 17710-100th Ave. SW, Vashon Island, WA 98070; (206) 463-3030.

■ Quality & Results Belgium N.V., known for its product HOLMES and MEETME, is now CHEOPS Technology N.V.

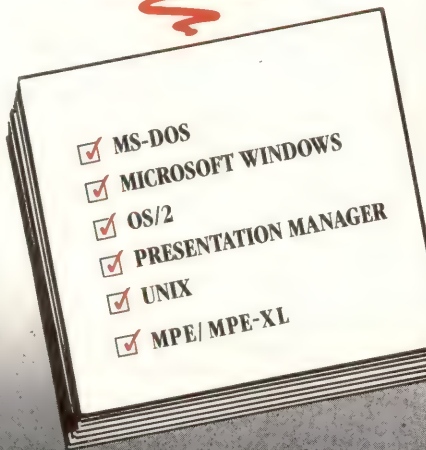
■ User Training Services Group (Palo Alto, CA) has announced its audiodigital tutorial for the HP 3000, "IMAGE for Programmers." It shows the necessary steps to design, compile and debug your own functioning IMAGE database. (415) 322-0460.

■ Visible Systems Corp. (Waltham, MA) has announced its monthly newsletter for systems developers, *CASE-bytes*. For subscription information, call (617) 980-CASE.

■ Complementronics Inc. (Rockaway, NJ) has developed a collection of training seminars focused on the emulation/analysis capabilities of the HP64000-UX microprocessor development environment. The two-day seminars present the HP64000-UX environment, microprocessor specific language tools and emulation technology for most of the microprocessors supported by HP and Tasco Electronic Services. These seminars are presented at your facility. (201) 6217-1006.

■ A technical paper from HP describes how to create a reusable test executive. The free two-page paper, "HP's Functional Test Manager — A Reusable, Roll-Your-Own Framework," is for managers who want to create a standard test executive for their production-test systems.

■ IEM's (Fort Collins, CO) Erasable Optical Disk Drive for HP computers is now available for \$7,500. The 5 1/4-inch Optical Disk Drive offers up to 650 MB of erasable data storage on a single compact cartridge. It attaches via an HP-IB cable and uses the CS-80 data transfer protocol. (303) 223-6071.



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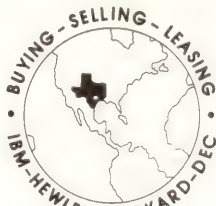
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[CALENDAR]

[MARCH]

12-14: INTEREX is holding its Computing Management Symposium at Caesars Palace in Las Vegas, NV. Call (408) 738-4848 for more information.

19-22: The National Computer Graphics Association (NCGA) is holding a conference and exposition at the Anaheim Convention Center, Anaheim CA. Call Michael Weiner (703) 698-9600.

27-29: DB/Expo '90, The National Exposition and Conference is taking place at the Moscone Convention Center San Francisco, CA. Contact Dana De Nardi (415) 941-8440.

[APRIL]

1-4: The Development Center Institute is holding its 1990 Spring International Development Center conference in Orlando, FL at the Orlando Marriott Hotel. Call (317) 846-2753 for more information.

8-10: BWRUG is holding the Fourth Atlantic Conference at Rosslyn Westpark Hotel,

Arlington, VA. Registration fee \$175. Call (301) 242-6777.

[MAY]

2-4: Southern California Regional Users Group (SCRUG) is holding its 13th annual technical conference and trade show for HP 3000 computer users at the Pasadena Conference Center, Pasadena, CA. For more information contact Betty Vaughan, (213) 450-3383.

28-6/1: The 11th Annual Eastern American Hewlett-Packard Users Conference is scheduled for the Bally's Plaza Hotel and Casino, Atlantic City, NJ. Call (215) 875-5324.

[JUNE]

19-20: MTLRUG is holding its quarterly meeting at the Dorval Airport Hilton, Canada. Call Mich Kabay (514) 931- 8167.

[AUGUST]

20-23: 1990 INTEREX HP Users Conference is taking place at the John B. Hynes Veterans Memorial Convention Center, Boston, MA. For more information call (408) 738-4848.

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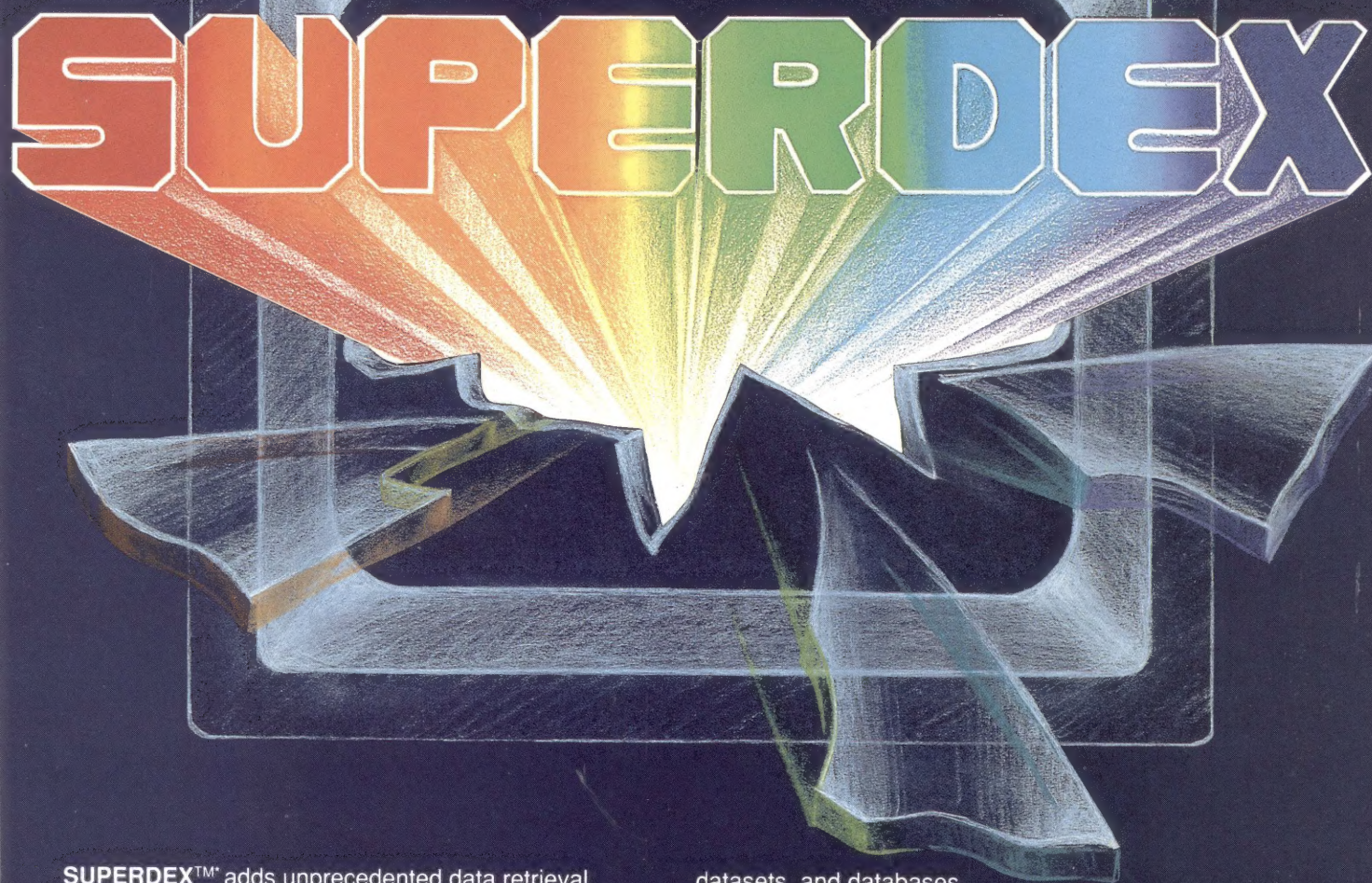
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